FEBRUARY 4, 1954

ENGINEERING NEWS-RECORD

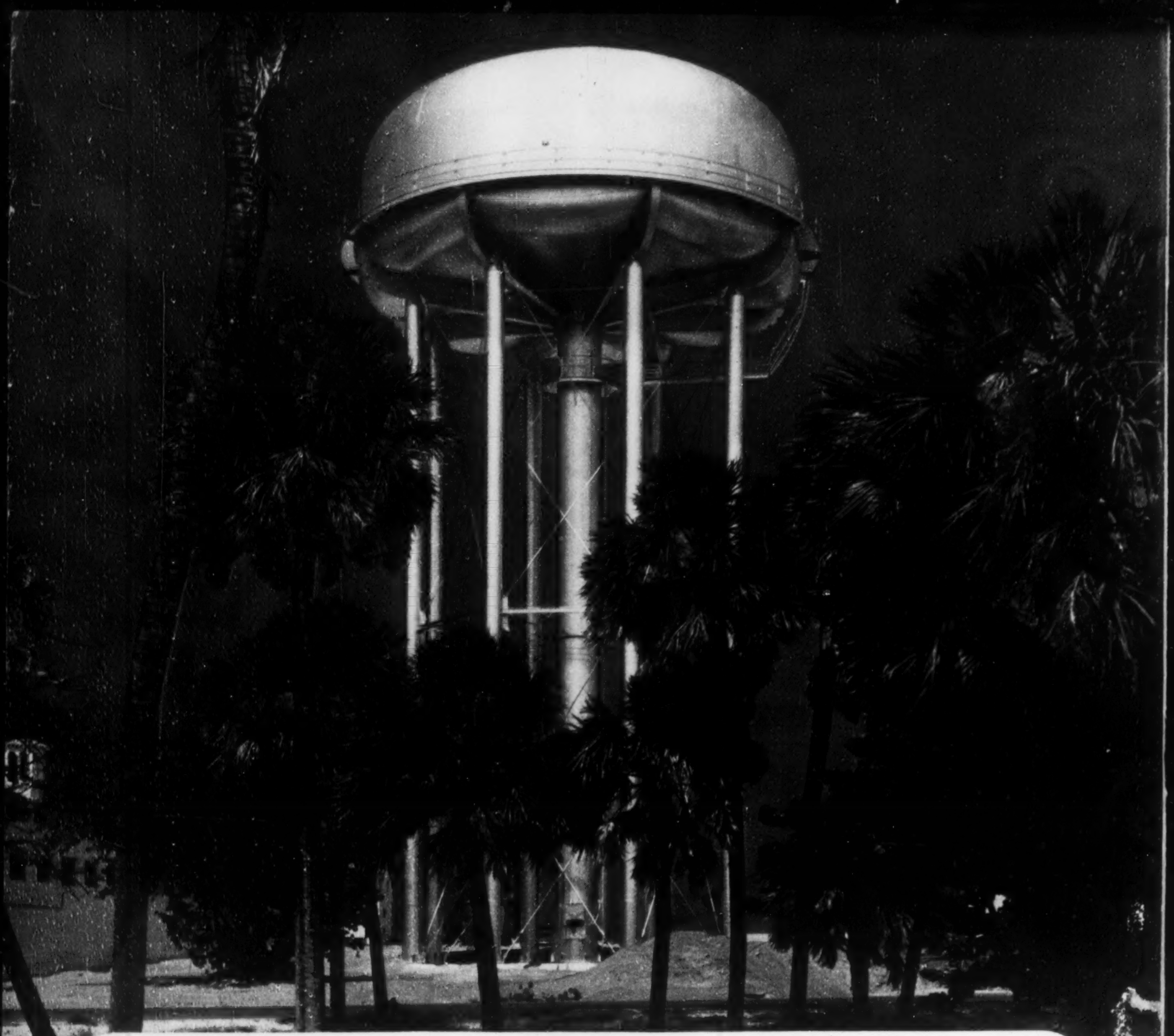
$5.00 A YEAR

EIGHTIETH YEAR OF PUBLICATION

Going places. New York's [illegible] makes it [illegible] to do (page [illegible])

- ★ More on engineering bidding
- ★ Design of [illegible] water mains

A McGRAW-HILL PUBLICATION



FOR MORE BOUNTIFUL WATER SERVICE

The 500,000-gallon Horton® radial-cone bottom elevated tank shown above is one of several we have installed for municipal water service at Fort Lauderdale, Florida. Addition of this tank to the system means a more bountiful water supply for domestic service and fire protection.

Because they are modern and pleasing in design, as well as easy to maintain, Horton elevated tanks of welded steel plate construction are widely used for municipal water service.

Horton radial-cone bottom tanks are built in standard capacities from 500,000 to 3,000,000 gallons and ellipsoidal-bottom tanks in capacities from 15,000 to 500,000 gallons. Write our nearest office for further information, estimates or quotations on a Horton elevated tank for your municipal water system.

CHICAGO BRIDGE & IRON COMPANY

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Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY, and GREENVILE, PA.

In Canada: HORTON STEEL WORKS LIMITED, FORT ERIE, ONT.

Stockpiles coal, sand, aggregate. Has traction and flotation to work right up on the pile.

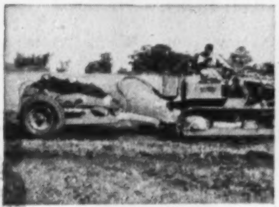
Excavates, fills, levels. Compact — for work in limited areas.

Backfills ditches, packs and levels ground with 16,200 lb. weight.

Cleans up rubble with one-cu. yd. tractor-width bucket.

Lifts material where needed. Saves manpower and need for other equipment.

Does sanitary fill work — digs, fills, covers, levels.



Does drawbar work scraping . . . hauling.

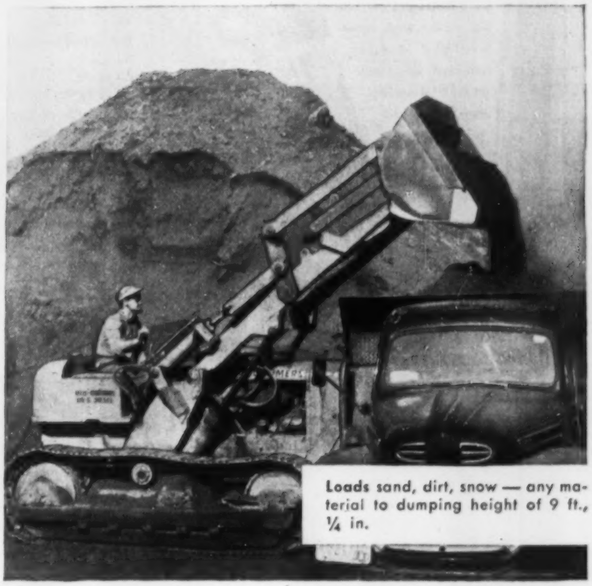
Landscapes, grades or slopes lawn areas around building projects.

ALLIS-CHALMERS HD-5G

Always Busy...

because it does so many jobs so well!

Busy equipment is profitable equipment. And thousands of owners are learning every day the year around that there's no more profitable machine on their jobs than the one-yard Allis-Chalmers HD-5G Tractor Shovel.



Loads sand, dirt, snow — any material to dumping height of 9 ft., ¼ in.

TEN QUICK-CHANGE ATTACHMENTS ADD TO HD-5G VERSATILITY

- Bulldozer
- Narrow Bucket
- Rock Bucket
- Crane Hook
- Light Material Bucket
- Trench Hoe
- Lift Fork
- Tine Fork
- Rock Fork
- Ripper

Larger size Allis-Chalmers tractors with shovels and other quick-change attachments offer the same wide utility, the same outstanding performing ability as the popular HD-5G. Choose the one that fits your needs.

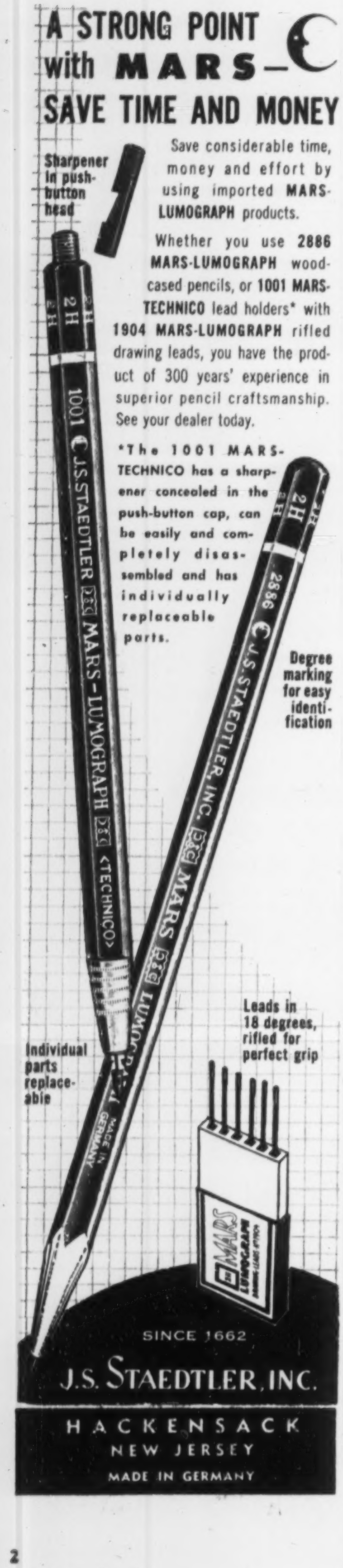
1-YD. HD-5G	2-YD. HD-9G	3-YD. HD-15G	4-YD. HD-20G
40.26 drawbar hp.	72 drawbar hp.	109 drawbar hp.	175 net engine hp.
Dumping height* 9 ft., ¼ in.	Dumping height* 11 ft., 4 in.	Dumping height* 12 ft., 8 in.	Torque Converter Drive
			Dumping height* 13 ft., 5 in.

*Height of bucket hinge

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

A STRONG POINT with MARS— SAVE TIME AND MONEY


Sharpener in push-button head
2H
1001 J.S.STAEDTLER MARS-LUMOGRAPH <TECHNICO>
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MADE IN GERMANY
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Degree marking for easy identification
Leads in 18 degrees, rifled for perfect grip
Individual parts replaceable

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ENGINEERING NEWS-RECORD

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Number of copies of this issue printed: 61,684

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Robert F. Boger

Publisher

February 4, 1954 **ENGINEERING NEWS-RECORD** **Vol. 152, No. 5**

Member ABC and ABP

Published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office, 99-129 North Broadway, Albany 1, N. Y.**

Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Donald C. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Vice-President and Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions: Address correspondence to Engineering News-Record—Subscription Service, 99-129 North Broadway, Albany 1, N. Y., or 330 W. 42nd St., New York 36, N. Y. Allow one month for change of address.

Subscriptions are solicited only from persons with an identifiable commercial or professional interest in construction and building. Position and company connection must be indicated on subscription orders.

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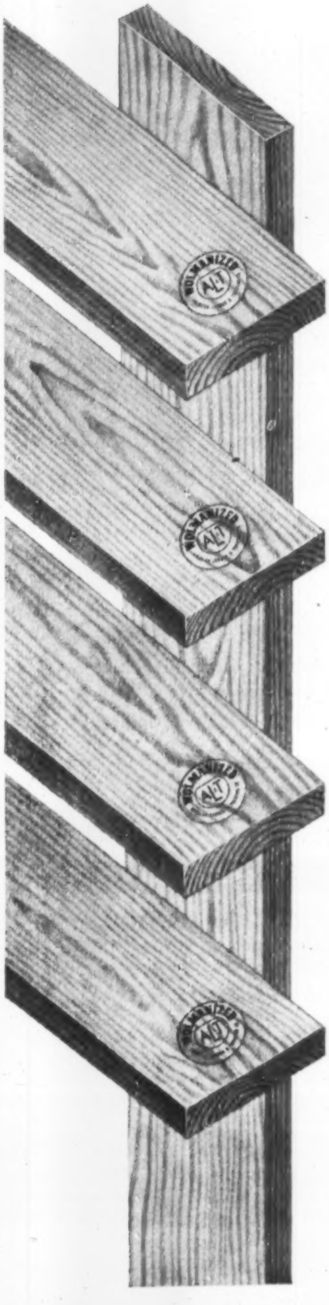
LUMBER
is ***your*** assurance



. . . Because only Wolmanized clean pressure-treated lumber gives you all four of these important advantages:

1 uniform treatment

Basic *Wolman salts are produced under a single exacting standard of control. And the pressure-treatment process by which Wolmanized lumber is made is the same throughout all 14 sources operating 24 pressure-treatment plants. Wherever you buy Wolmanized lumber, you can be certain of uniform undeviating standards of treatment.

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3 available anywhere

It is easy to specify Wolmanized lumber by name. And delivery is assured, since Wolmanized lumber is produced coast-to-coast and in Canada by 24 recognized and dependable wood-preserving plants. You are assured, too, by the fact that 47% of all clean pressure-treated lumber is Wolmanized lumber . . . nearly as much as the total output of all other sources combined. You are assured of a nationally recognized and accepted product with Wolmanized lumber.

4 proved dependability

Actual service records prove that Wolmanized pressure-treated lumber lasts years longer. Even under the most demanding conditions . . . such as "Wet Process" industries . . . Wolmanized lumber gives many times the service of untreated lumber, or lumber that has merely been dipped in preservative. For further information write: American Lumber & Treating Company, McCormick Building, Chicago, Illinois.

*"Wolman" and "Wolmanized" are registered trade names of American Lumber & Treating Co.

Pressure-Treated

Wolmanized
LUMBER

Why research never says: "let well enough alone"

Anyone might fairly assume that cast iron pipe which has served, and is still serving, over 50 American cities for more than a century, is as efficient and economical as pressure pipe can possibly be. Our member Companies have not been content to rest on that assumption.

By continuous research and development, they have attained, in *modernized* cast iron pipe, greater toughness, strength and uniformity to a point resulting in still greater efficiency and economy.

Modernized cast iron pipe is centrifugally-cast. Where needed and specified, it is lined with cement mortar centrifugally applied, resulting in a tuberculation-proof pipe with sustained carrying capacity and, therefore, reduced friction loss and pumping costs.

If you want the most efficient and economical pipe ever made for water distribution, your new mains will be laid with *modernized* cast iron pipe with either mechanical or bell-and-spigot joints. Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director, 122 So. Michigan Ave., Chicago 3.

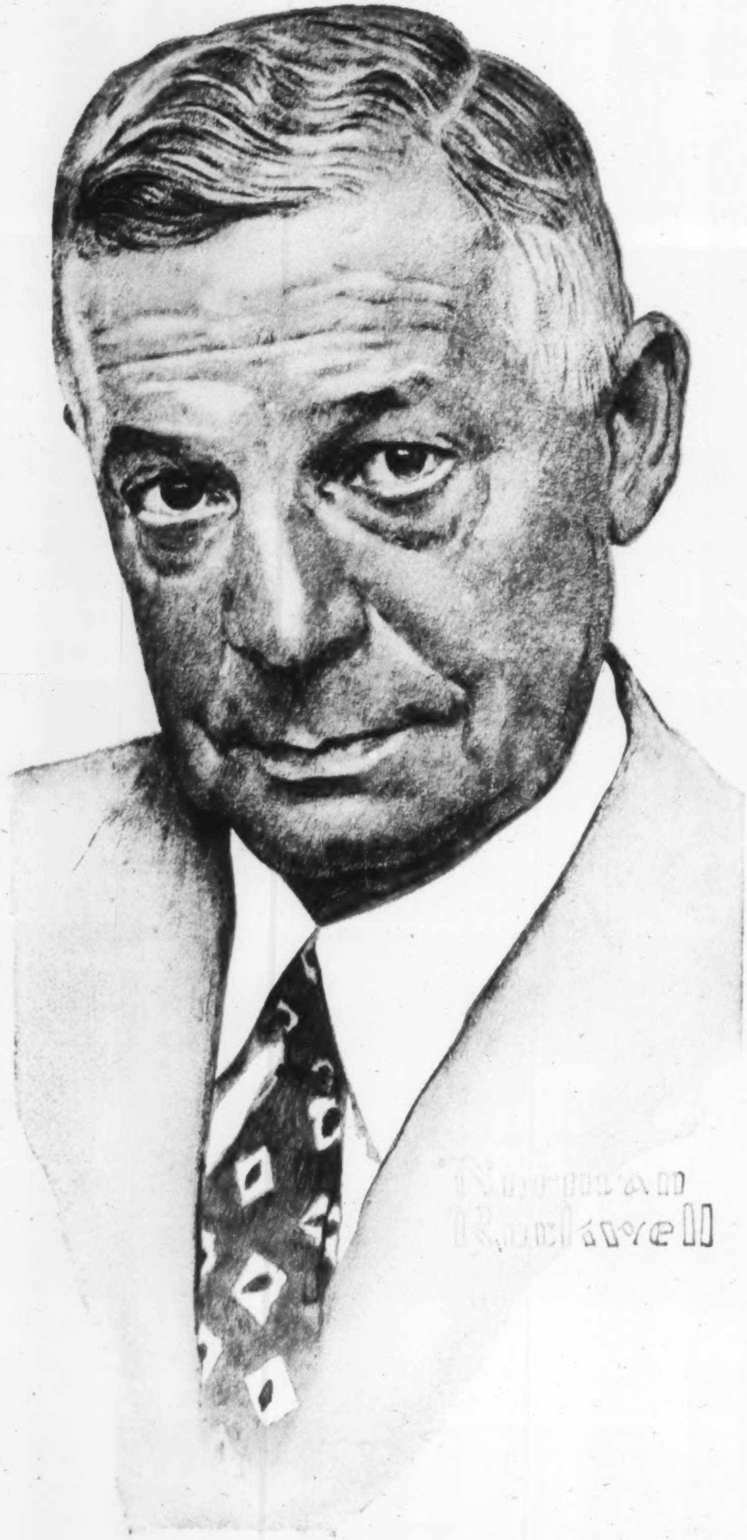
CAST Q IRON

The Q-Check stencilled on pipe is
the Registered Service Mark of the
Cast Iron Pipe Research Association.

Modernized **cast iron**

This cast iron water main, uncovered for inspection, is in good condition after 100 years of service in Alexandria, Va.—one of more than 50 cities with century-old water or gas mains in service.

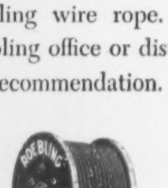
pipe for Modern Waterworks Operation



He Knows!

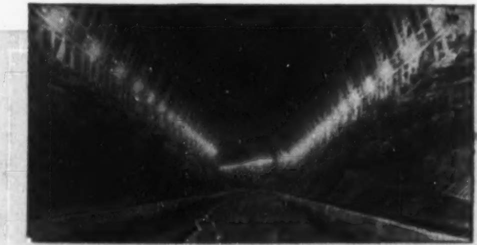
EXPERIENCE is the truest guide to production efficiency and economy...and experience in the excavating and construction fields proves that Roebling wire rope is your one top choice for avoiding delays, cutting down replacements and saving wire rope dollars.

All over the country, large numbers of experienced wire rope users definitely prefer Roebling wire rope. Call your nearest Roebling office or distributor for a Roebling recommendation.

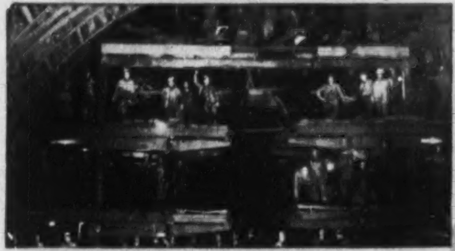


ROEBLING
A subsidiary of The Colorado Fuel and Iron Corporation

JOHN A. ROEBLING'S SONS CORPORATION, TRENTON 2, N. J. BRANCHES: ATLANTA, 934 AVON AVE. • BOSTON, 51 SLEEPER ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1920 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE TRENTON 2, N. J.



Full heading after both top heading and bench have been excavated. Excavated dia.—51 ft.

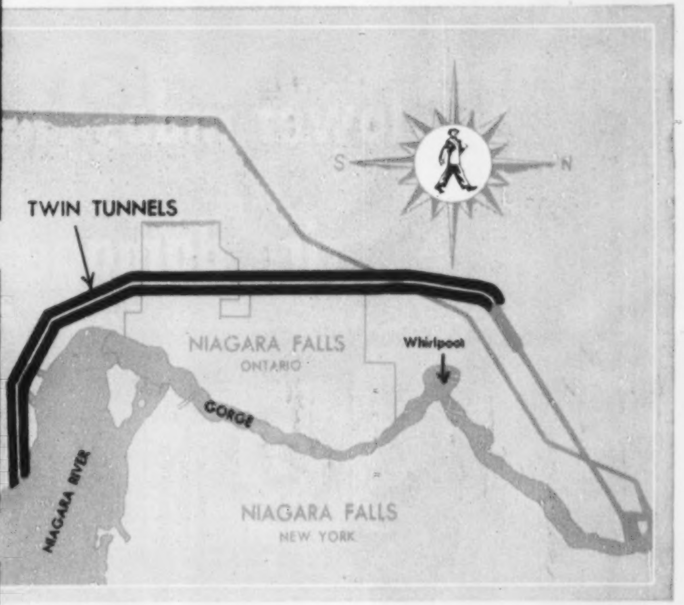


Main Jumbo for driving top heading—mounts 17 T-350 long-feed drifters on Joy Hydro Drill Jibs.

Jumbo for bench drilling—suspended from roof supports—mounts 13 Joy T-350 long feed drifters.

8 Joy WN-102 compressors—referred to by contractor as "ultimate in compressor usage."

Series 1000 Axivane Fans in ventilation arrangement. Tracks permit adding fans as desired.



PROGRESS REPORT ON THE WORLD'S LARGEST TUNNEL

SIZE: **Twin Tunnels 51' Dia., 5½ mi. length.**

LOCATION: **Niagara Falls, Ontario.**

EQUIPMENT USED **(All Joy Installation):**

114 T-350 Drifters on LW-6A Feeds on Hydro Drill Jibs.
24 WN-102 Semi-Portable Air Compressors.
Series 1000 Axivane Fans—added as needed to maintain air volume.

The world's largest tunnel is being bored out of *solid rock* with the help of Joy rock-drilling equipment, ventilating fans and air compressors.

4,375,000 cu. yds. (9,923,000 tons) of rock will be excavated to form the huge twin tunnels. These 5½ mile tunnels will convey water from the upper Niagara River beneath the city of Niagara Falls, Ontario, to a point near the Whirlpool Rapids, well below the Falls. Water thus diverted for hydro-electric power purposes would supply the water needs of 200 million people!

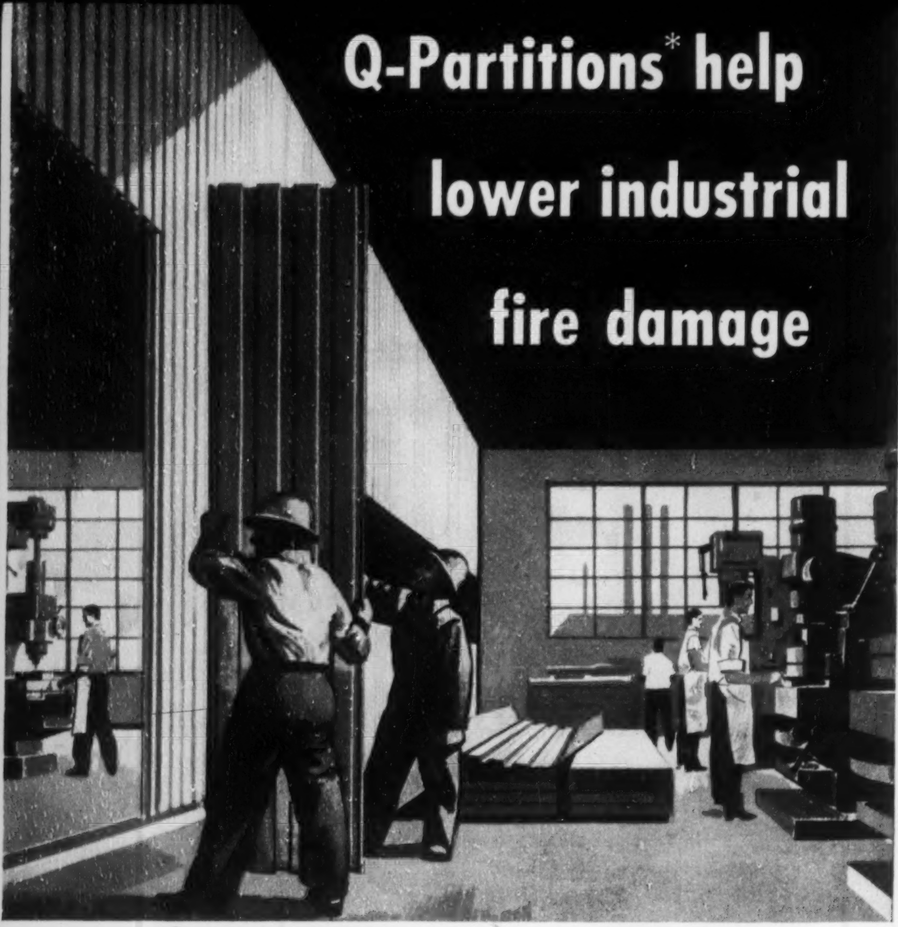
This is the first large tunnel operation where drilling has been mechanized. The "All Joy Equipment" installation confirms Joy's position as leader in the heavy construction and tunneling equipment market. **Joy Manufacturing Company, Oliver Building, Pittsburgh 22, Pa.** In Canada: *Joy Manufacturing Company (Canada) Limited, Galt, Ontario.*

Consult a Joy Engineer

JOY

WORLD'S LARGEST MANUFACTURER OF UNDERGROUND MINING EQUIPMENT

W&D C-4587


Q-Partitions* help lower industrial fire damage

Fire prevention experts agree that one way to prevent costly industrial fires is to reduce large areas by the use of fire-resistive partitions. By doing so, fires that would tend to spread swiftly can be contained in a smaller area where they can be fought more effectively and brought under control. Robertson Two-Hour Fire Resistive Q-Partition is ideal for this purpose. Its installation will not interrupt production schedules . . . it is quick, clean, dry construction. It goes up while production goes on. And because it is clean and dry, there is no discomfort to employees, nor is there danger of dirt and dust injuring precision instruments or machines.

Robertson Q-Partition units arrive at the job-site ready for installation, and require a minimum of field work, scaffolding and working space. *They are easily and quickly demounted and re-erected elsewhere,* giving a freedom of planning and layout not possible with other types of construction. They are good looking and have a high factor of light reflection. A Robertson Two-Hour Fire Resistive Q-Partition unit consists of two 18 gauge rolled steel fluted sections (each 1⅝" deep) between which is sandwiched 1½" (three ½" layers) of gypsum board. Each unit or panel is 24" wide and made in lengths up to 22'0". Robertson Q-Partitions are listed and approved by Factory Mutual Laboratories. Write for literature.

Robertson

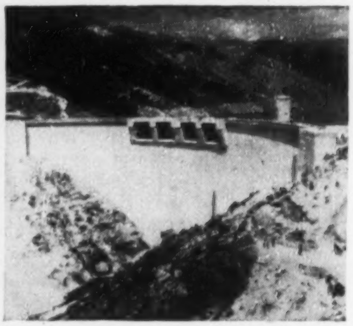
***Two-Hour Fire Resistive**

Q-PARTITIONS*

a product of **H. H. Robertson Company**

2420 Farmers Bank Building • Pittsburgh 22, Pennsylvania
In England—Robertson Thain Limited, Ellesmere Port, Cheshire
In Canada—Robertson-Irwin Limited, Hamilton, Ontario

READER COMMENT



Salamonde thin arch dam completed

Portugal dam is thin arch

SIR: In your issue of Aug. 10, 1953, p. 73, a caption for a photo of Salamonde Dam under construction on the Cavado River in Portugal states that the dam is of gravity-arch type whereas it is actually a thin arch between two gravity abutments. I have developed the design of the project in close collaboration with the owner, the Societe Hidro-Electrica de Cavado.

The thickness of the arch section is 23 ft at the base and 6.6 ft at the top. For a height of 246 ft. and a developed length of 664 ft. between abutments, the total volume of the arch is only 122,000 cu. yd.

ANDRE COYNE
Consulting Engineer
Paris, France

Covered bridges modernized

SIR: We have noted with interest, the picture of the covered bridge in ENR Dec. 24, 1953, p. 35. Our company was privileged to work with the Massachusetts highway department in the development of the plans for this bridge and subsequently we were awarded a contract for fabricating the timber structural members.

Although the design maintains the classic beauty of the original covered bridges, there are several modern innovations incorporated in this structure. The approach spans have glued laminated Douglas fir members, the main stringers of the covered span, which do not show up in the picture. The structural members were also designed and connected with modern timber connectors, in lieu of bolts and dowels, which were used in the original structure.

The general contractor for this bridge in Sheffield was the White Contracting Co. of Cambridge, Mass.

(*Continued on page 12*)

IN OMAHA THEY PUT CURVES IN STRAIGHT PIPE WITH TYLOX *flexible rubber* JOINTS

Laying concrete sewer pipe "on radius" is always a tough proposition. But, it's extra tough when the ditch is wet and when you must have tight joints.

That was the triple problem facing the engineer and contractor on Omaha's new section of storm sewer. They needed a coupling that would permit angularity; that could be applied in a wet ditch without grouting; that could compensate for shifting soil stresses; and, that would give tight joints that stay tight.

They found the answer in TYLOX—the flexible, rubber coupling that makes lines "leakproof for life." TYLOX slips onto the pipe quickly and easily. There's no grout to harden—no need to worry about mud, or water. The coupling is fast. The pipe just slide together. And, there's no waiting to back-fill. As soon as the pipe is coupled, the ditch can be filled.

What's more, a TYLOX joint is flexible—and, stays that way. Rubber under compression and underground lasts indefinitely. It gives a tight seal that automatically adjusts for shifts in soil — that readily conforms to angling the pipe around curves.

Why not look into TYLOX, today? Engineers and contractors the world over have found it the economical, efficient answer to the toughest of pipe line installations.

Thumbnail Facts
About Omaha Storm Sewer No. 1744

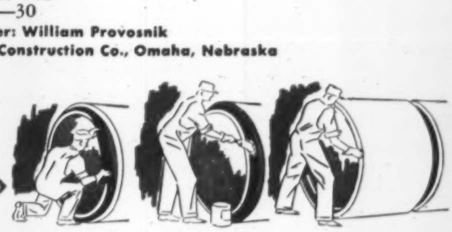
Location: From 41st & Blondo west to Parker St.
Pipe: T & G, Concrete Pipe, Supplied by Wilson Concrete Co., Red Oak, Iowa:
558 lineal feet—36" bore—ASTM C-75-41
52 lineal feet—30" bore—ASTM C-75-41

Data on Curves Made with TYLOX JOINTS:

1. Radius—56.5 feet
   Angle—47° 44′
   Tangent—25
2. Radius—65.525 feet
   Angle—47° 12′
   Tangent—30
3. Radius—47.32 feet
   Angle—55° 42′
   Tangent—25

Sanitation Engineer: William Provosnik
Contractor: Sesto Construction Co., Omaha, Nebraska

Making Joints with TYLOX RUBBER GASKETS Is as simple as A B C



Cement tongue and snap on Tylox gasket.

Lubricate sliding surfaces with Tylox Cement.

Shove the pipe home.

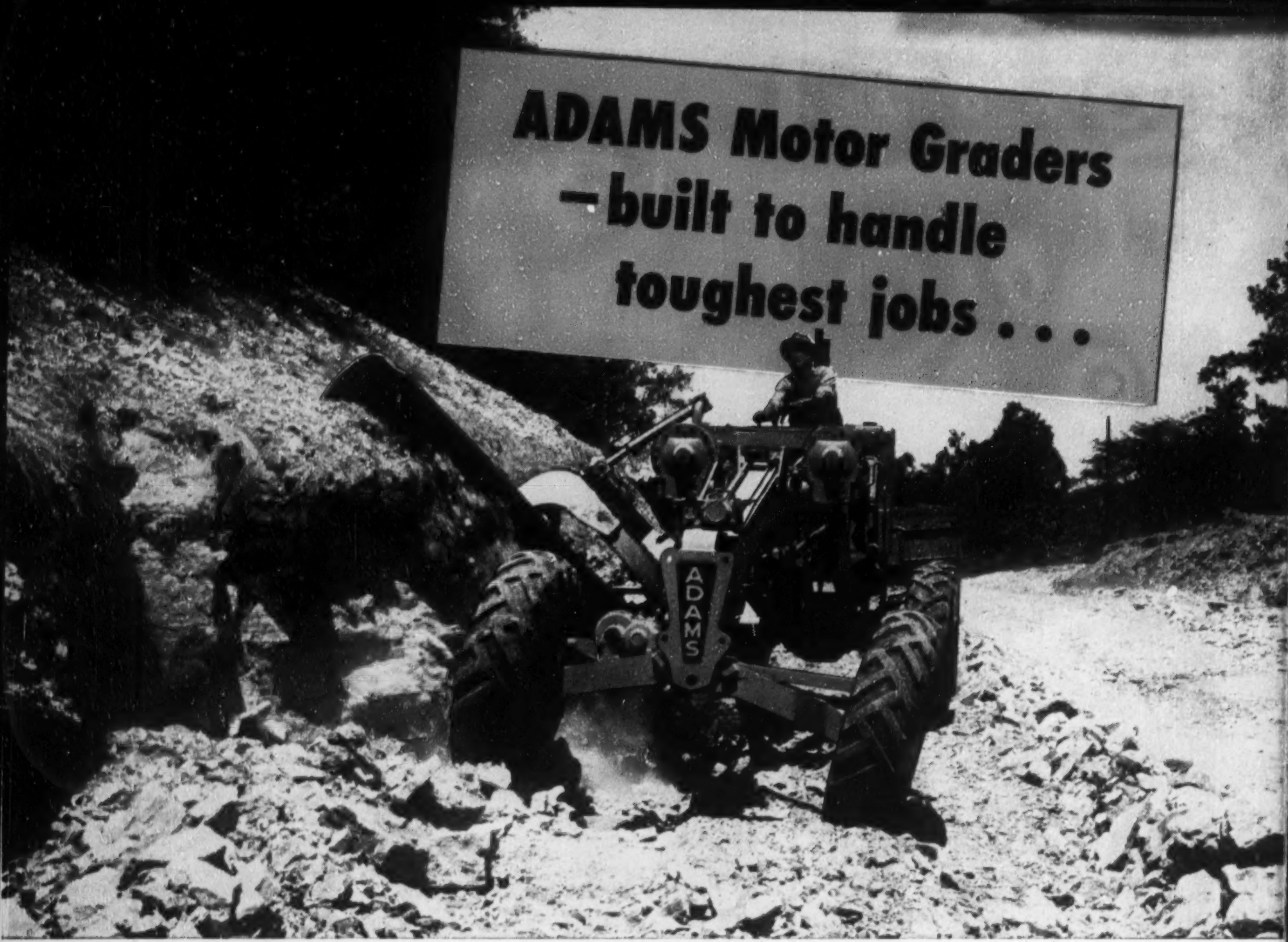
1745

[illegible]

HAMILTON KENT
MANUFACTURING CO.
KENT, OHIO

[illegible]

"THE ONLY PERMANENTLY TIGHT LINES ARE LAID WITH RUBBER JOINTS"



Jobs for motor graders don't come much tougher than the heavy bank-cutting operation shown above. Working in rugged, rocky country like this demands unusual power, strength and stamina—the kind that Adams Motor Graders are world-famous for.

The ability to stand up under punishing work is only one of the many advantages you will find in Adams Motor Graders. They also give you a combination of time- and money-saving features not to be found in any other machines. (See listing at right.)

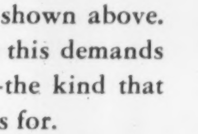
Before you buy any motor grader, let your local Adams dealer show and demonstrate what these advantages can mean to you in the way of higher production and lower costs.

J. D. ADAMS MANUFACTURING CO. • INDIANAPOLIS, INDIANA

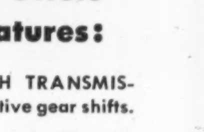
Only ADAMS Offers All These Features:

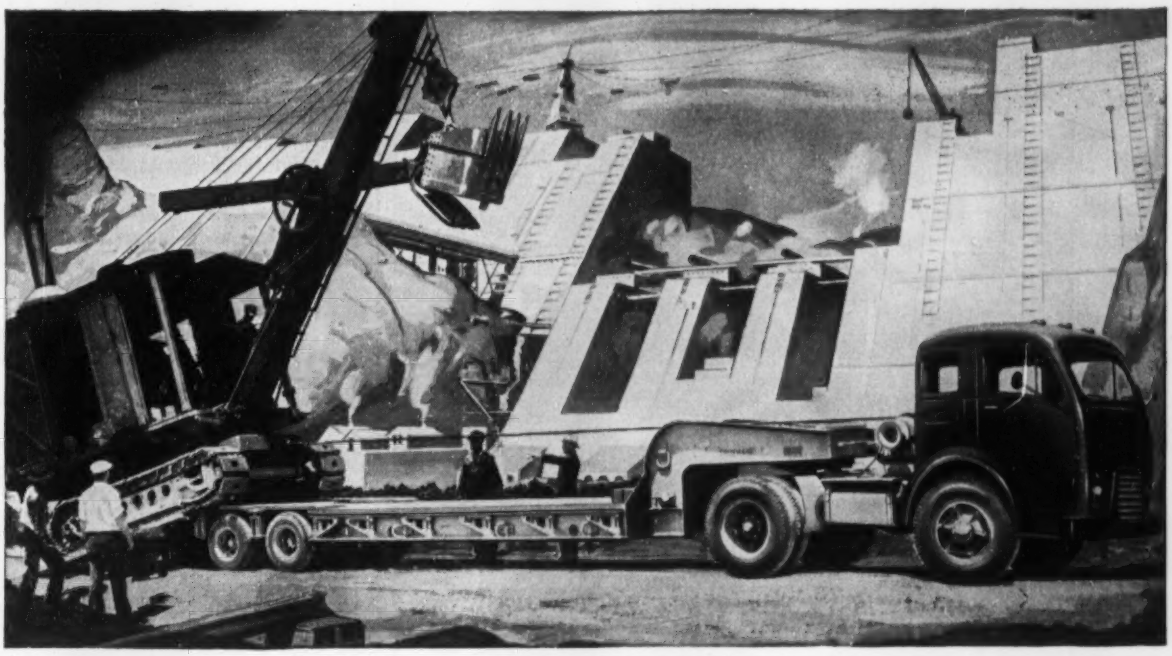
- **NEW CONSTANT-MESH TRANSMISSION**—quick, easy, positive gear shifts.
- **8 FORWARD SPEEDS**—up to 26 mph. for fast transport.
- **4 REVERSE SPEEDS**—up to 13 mph. Save time on shuttle work.
- **3 CREEPER SPEEDS**—low as ¼ mph. (Optional).
- **RUBBER-MOUNTED ENGINE**—floating power—no vibration transmitted to grader.
- **DUAL BRAKING SYSTEM**—quicker, easier, safer stops, with less effort.
- **FOOT ACCELERATOR**—for easier, safer overland travel.

ADAMS


Motor Graders

TraveLoaders


Pull-Type Graders

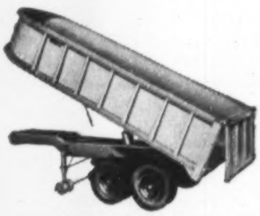


Where "Engineered Transportation" Counts!

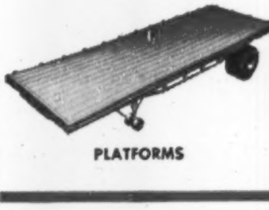
Where The Going Is Rough . . . When Time Lost Can Be Costly . . . Dependable Fruehaufs Pay Off!

These Fruehaufs — And Many More — Are Built To Last On The Tough Jobs!

BULK CEMENT TRAILERS



DUMP TRAILERS



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With 38 years of experience in designing and building rugged, long-lasting Trailers for construction work, Fruehauf is certainly qualified to build the special Trailer that *your* job needs. In fact, because of the nationwide usage of Fruehauf's broad line of Trailers, there is probably a standard unit in the Fruehauf line with features and specifications matched to your job.

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FRUEHAUF TRAILER COMPANY
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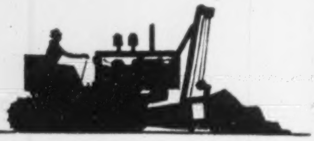

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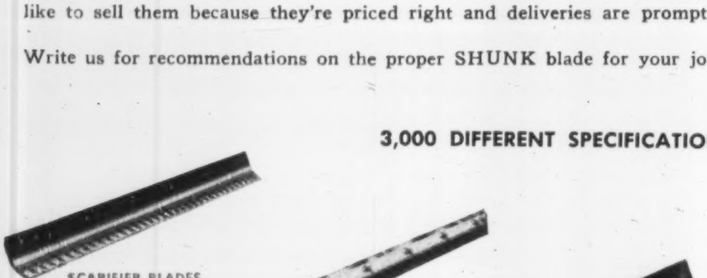

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READER COMMENT

You indicate in your picture caption that this is believed to be the first covered bridge built in New England in this century. I should like to point out, however, that our company furnished prefabricated structural members of Douglas fir timber for the Bissel Bridge in the town of Charlemont, Mass., in 1951. This bridge has a 94-ft span and was designed for H-15 loading. The general contractor was T. J. Harvey & Sons of Adams, Mass., and the engineer, R. O. Spofford.

ELON E. ELLIS
Manager, Eastern Division
Timber Structures, Inc.
Ramsey, N. J.

CALENDAR

Ohio Water Clinic Conference, Ohio State University, Columbus, Feb. 11-12.

National Ready-Mixed Concrete Association and the National Sand & Gravel Association, Conrad Hilton Hotel, Chicago, Feb. 15-19.

American Society of Civil Engineers, Hotel Biltmore, Atlanta, Ga., Feb. 17-19.

N. J. section American Water Works Association, winter meeting, Essex House, Newark, N. J., Feb. 16.

Northwest conference on road building, University of Washington, Seattle, Feb. 17-19.

National Society of Professional Engineers, Hilton Hotel, Albuquerque, N. M., Feb. 19-20.

National Crushed Stone Association, Conrad Hilton Hotel, Chicago, Feb. 22-24.

Highway Engineering Conference, University of Colorado, Boulder, Feb. 25-26.

American Concrete Institute, Golden Anniversary Convention, Shirley-Savoy Hotel, Denver, Colo., Feb. 22-25.

American Concrete Pipe Association annual convention, Fairmont Hotel, San Francisco, Calif., Feb. 25-27.

Associated General Contractors of America, Hotel Statler, Los Angeles, Calif., March 1-4.

Illinois Highway Engineering Conference, University of Illinois, Urbana, March 2-4.

N. Y. State Association of Highway Engineers, Arlington Hotel, Binghampton, N. Y., March 3-5.

Association of Highway Officials of the North Atlantic States, Hotel Shoreham, Washington, D. C., March 10-12.

American Railway Engineering Association, Palmer House, Chicago, March 16-18.

Southern Municipal and Industrial Wastes Conference, N. C., State College, Raleigh, N. C., March 18-19.

American Congress on Surveying and Mapping, annual meeting and exhibit, Hotel Shoreham, Washington, D. C., March 22-24.

Southeastern section AWWA, Poinsett Hotel, Greenville, S. C., March 29-31.

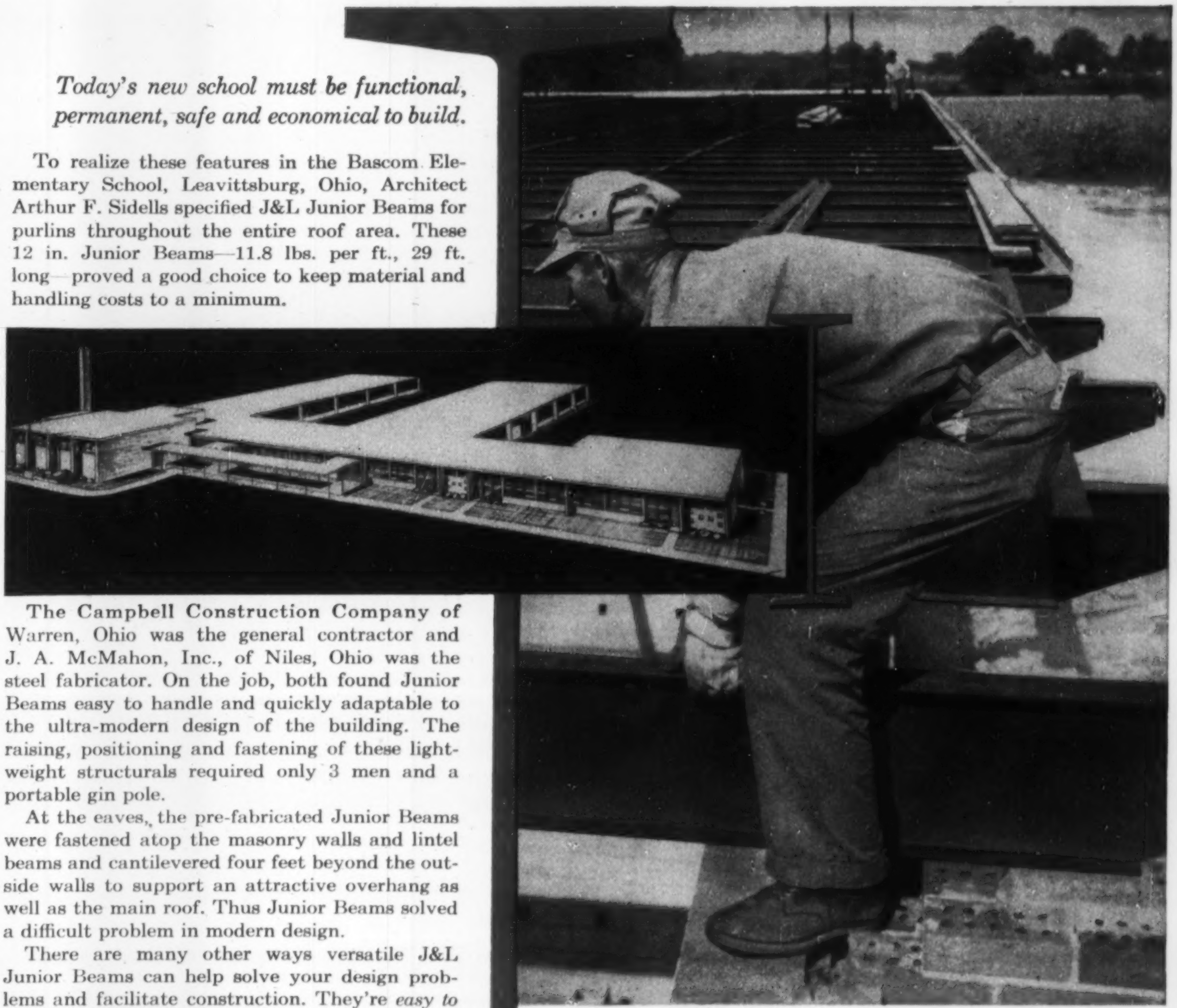
J&L
STEEL

Junior Beams

fit modern design and building budget of Bascom Elementary School

Today's new school must be functional, permanent, safe and economical to build.

To realize these features in the Bascom Elementary School, Leavittsburg, Ohio, Architect Arthur F. Sidells specified J&L Junior Beams for purlins throughout the entire roof area. These 12 in. Junior Beams—11.8 lbs. per ft., 29 ft. long—proved a good choice to keep material and handling costs to a minimum.



The Campbell Construction Company of Warren, Ohio was the general contractor and J. A. McMahon, Inc., of Niles, Ohio was the steel fabricator. On the job, both found Junior Beams easy to handle and quickly adaptable to the ultra-modern design of the building. The raising, positioning and fastening of these lightweight structurals required only 3 men and a portable gin pole.

At the eaves, the pre-fabricated Junior Beams were fastened atop the masonry walls and lintel beams and cantilevered four feet beyond the outside walls to support an attractive overhang as well as the main roof. Thus Junior Beams solved a difficult problem in modern design.

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Find out! Write today for our new booklet "J&L Junior Beams." It shows how Junior Beams are used as floor joists and roof purlins with loading and spacing tables for various spans.

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Jones & Laughlin
STEEL CORPORATION — *Pittsburgh*

Jones & Laughlin Steel Corporation
Dept. 428, 3 Gateway Center, Pittsburgh 30, Pa.

Please send me a copy of the booklet entitled "J&L Junior Beams."

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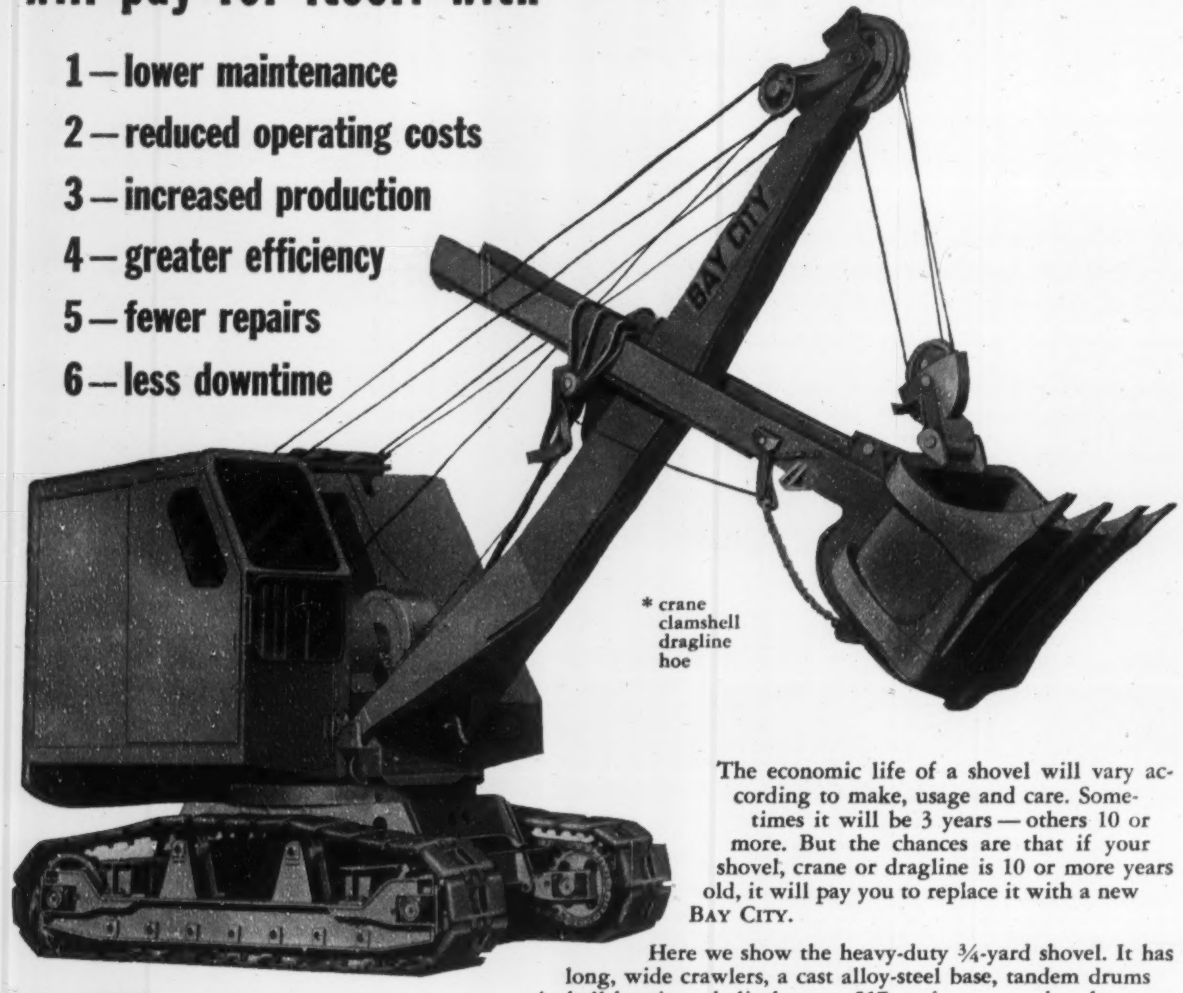
Company____________________________
Address____________________________

how OLD is your shovel?* if 10 years or more, this new BAY CITY will pay for itself with

1 — lower maintenance
2 — reduced operating costs
3 — increased production
4 — greater efficiency
5 — fewer repairs
6 — less downtime



* crane
clamshell
dragline
hoe

The economic life of a shovel will vary according to make, usage and care. Sometimes it will be 3 years — others 10 or more. But the chances are that if your shovel, crane or dragline is 10 or more years old, it will pay you to replace it with a new Bay City.

Here we show the heavy-duty ¾-yard shovel. It has long, wide crawlers, a cast alloy-steel base, tandem drums in ball bearings, helical gears, 517-cu.-in. gas engine, booster clutches, power dipper trip, 19-foot boom, 14-foot straddle-type dipper sticks, rock-type bucket, chain crowd — and many other time and money saving features. Shovel weight approximately 46,500 pounds.

That represents BIG VALUE — why not see your nearest Bay City dealer or write direct for catalog.

Bay City Shovels, Inc., Bay City, Michigan

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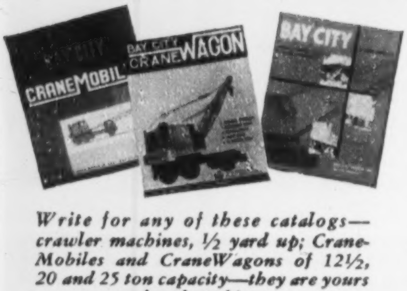
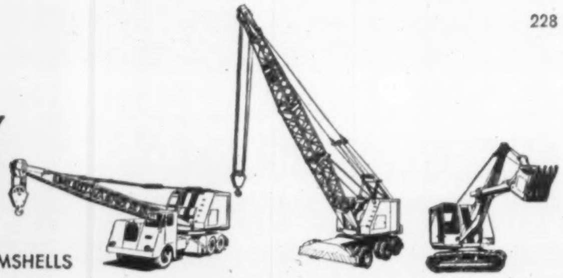


Write for any of these catalogs— crawler machines, ½ yard up; CraneMobiles and CraneWagons of 12½, 20 and 25 ton capacity—they are yours for the asking.

BAY CITY



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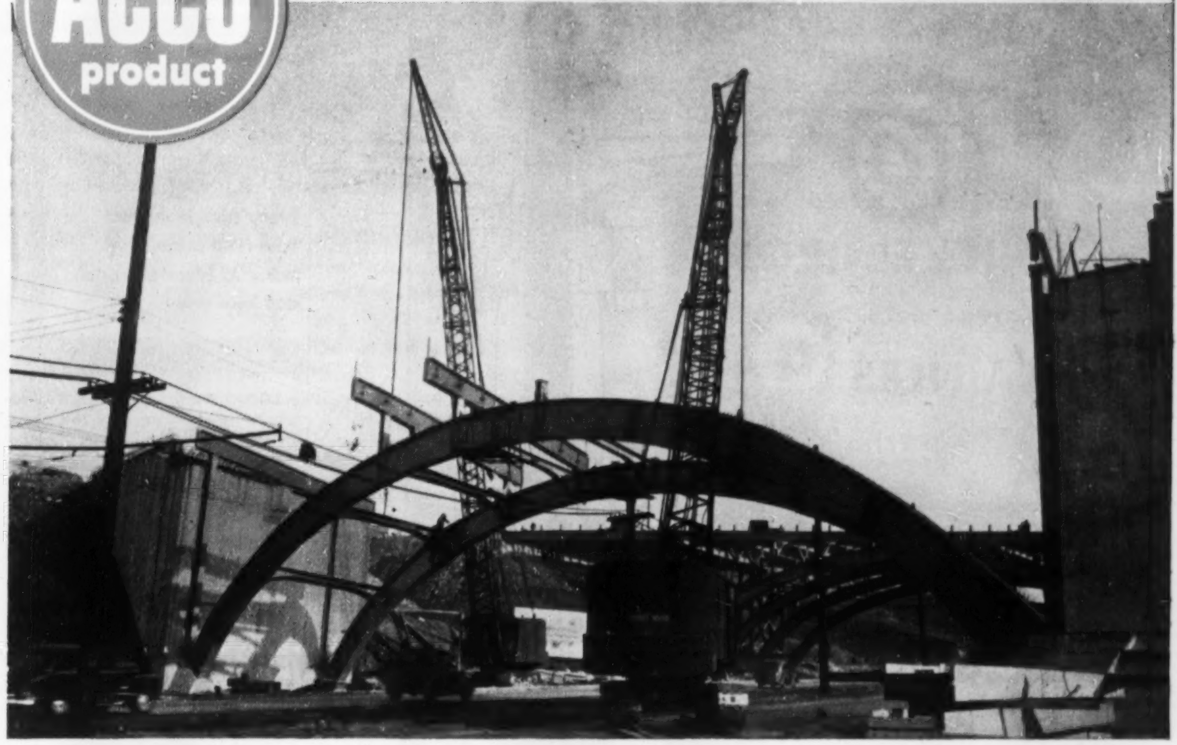
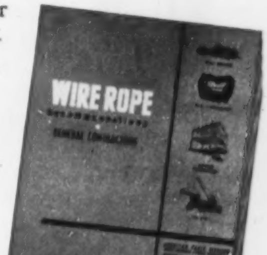
TRU-LAY Preformed WIRE ROPE



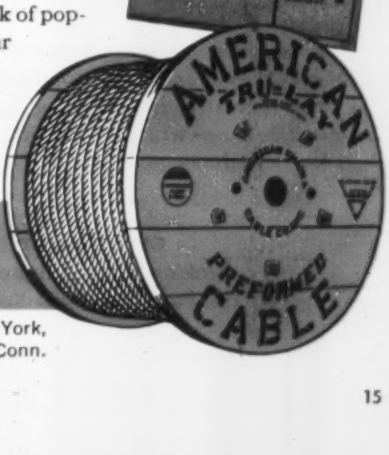
Should Boom and Hoist Lines Be the Same Construction?



- Yes, if you use a tag line. No, if no tag line. Maybe you, like some other contractors, are still using 6 x 25 filler wire construction for the hoist line without a tag line and are having trouble with spinning. It's pretty common practice.

AMERICAN CABLE gives the simple solution to this irritating, and expensive, trouble in "Wire Rope Recommendations for General Contractors." Here is a 16-page book that gives you factual information based on service records maintained by American Cable's engineering staff for many years. It covers recommendations you can depend on for every type of equipment you operate.

See your nearby AMERICAN CABLE distributor who carries a stock of popular TRU-LAY Preformed GREEN STRAND Wire Ropes. Or write our Wilkes-Barre, Pa., office for a copy of No. 128-B "Wire Rope Recommendations for General Contractors." It will save you money.



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for lower cost control of moderately **Corrosive** fluids

Fig. 2651-A Gate

JENKINS
NICKEL IRON
Valves with Type 316
STAINLESS STEEL
Trim

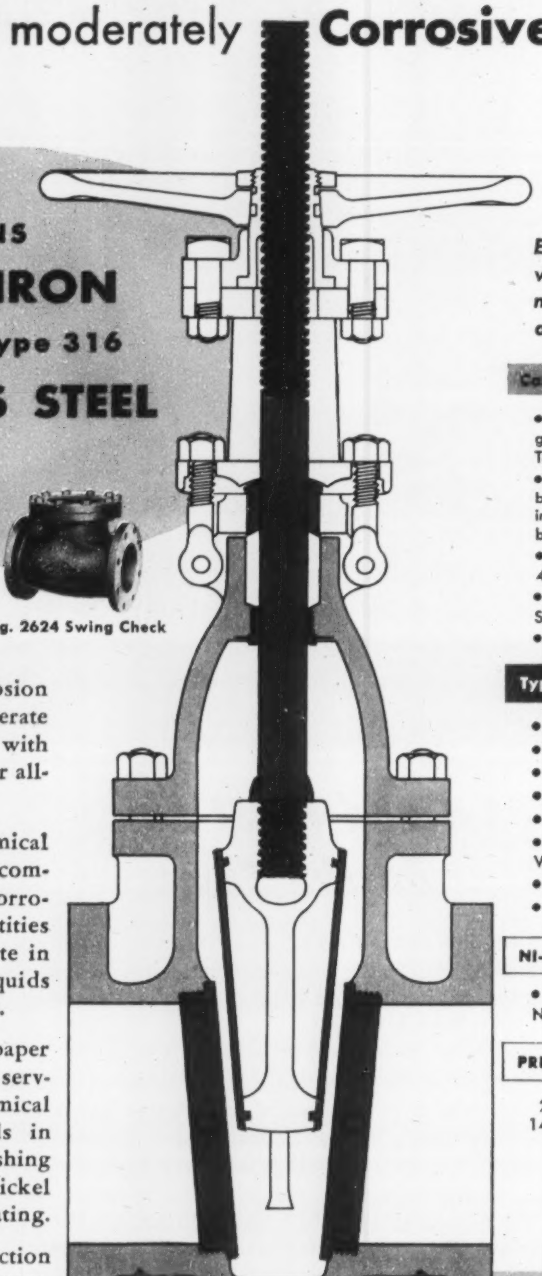

Fig. 2624 Swing Check

This combination provides corrosion resistance well above the moderate need in many processing services with an investment well below that for all-stainless steel valves.

Designed primarily for the chemical process industries, they are recommended for control of mildly corrosive liquids with minimum quantities of mineral acids, such as creosote in wood treatment, and many liquids carried in petroleum processing.

A major use is in pulp and paper processing, particularly in lines serving the digester, and in the chemical recovery cycle. Service records in lines carrying the valve-punishing "black liquor" give Jenkins Nickel Iron Valves top performance rating.

Jenkins *extra value* construction throughout. Get details — compare. See why they stretch your valve investment dollar — with longer service life, lower maintenance cost.

Every part in contact with fluid is the right metal to block corrosion and beat wear.

Cast NICKEL IRON

- **BODIES** Heavy duty, dimensioned for greater resistance to wear and abuse. Through port design in Gate Valves.
- **BONNET** Rugged construction, like body. Swing-type gland bolts. Screwed-in back-seating bushing. Deep stuffing box.
- **YOKE** Integral with bonnet in 2" to 4" sizes.
- **WEDGE** In 10" to 24" sizes, with Stainless Steel Wedge Rings.
- **COVER** In Check Valve.

Type 316 STAINLESS STEEL

- SPINDLE
- GLAND
- BONNET BUSHING
- SPINDLE RING
- WEDGE PIN
- WEDGE RINGS Rolled into Nickel Iron Wedge in 10" to 24" sizes.
- SEAT RINGS
- DISC and HANGER in Gate Valve

NI-RESIST Type No. 2

- WEDGE of I-beam structure is solid NI-RESIST in 2" to 8" sizes.

PRESSURE RATINGS

2" to 12"—200 lbs. O.W.G.
14" to 24"—150 lbs. O.W.G.

GET COMPLETE SPECIFICATIONS from your
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100 Park Ave., New York 17. Ask for Bulletin 118.

JENKINS
LOOK FOR THE DIAMOND MARK
VALVES
SINCE 1864 TRADE JENKINS MARK
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FEBRUARY 4, 1954

THE CONSTRUCTION WEEK

Vol. 152, No. 5

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NO FOOD FOR BASES—Senator McCarran's proposal (ENR Jan. 7 p. 17) to let Spanish base subcontracts to German firms because (1) they'd be cheaper and (2) they'd take part of their pay in food, ran into some not-unexpected snags:

A Senate Armed Services subcommittee was told that (1) the U. S.-Spain agreement called for use of U. S. and Spanish personnel only, (2) any subcontract deal with a German firm could account for only perhaps $2 million worth of surplus food (not the "hundreds of millions" McCarran had suggested).

Incidentally, the specific firm McCarran had in mind is United Constructors, a five-firm combine (Julius Berger, Dyckerhoff & Whidman, Gruen and Bilfinger, Phillip Holzmann, Wayss & Freitag) whose U. S. affiliate—U. S. Brenner Corp. of New York—had circularized Congress early in the Spanish negotiations.

IRRADIATED PLUMBING?—Plastic pipe and fittings —some of it irradiated to gain resistance to heat and some of new break-resistant compounds—will capture $250 million or more of the plumbing market in 10 years, according to the experts.

Papers at the first international session of the Society of Plastics Engineers (held at Toronto) mentioned a process whereby plastic could be exposed to atomic radiation, made resistant to temperatures as high as 300 deg. F. Other plastics would replace metal plumbing because of ease of handling and assembly, resistance to corrosion or breakage.

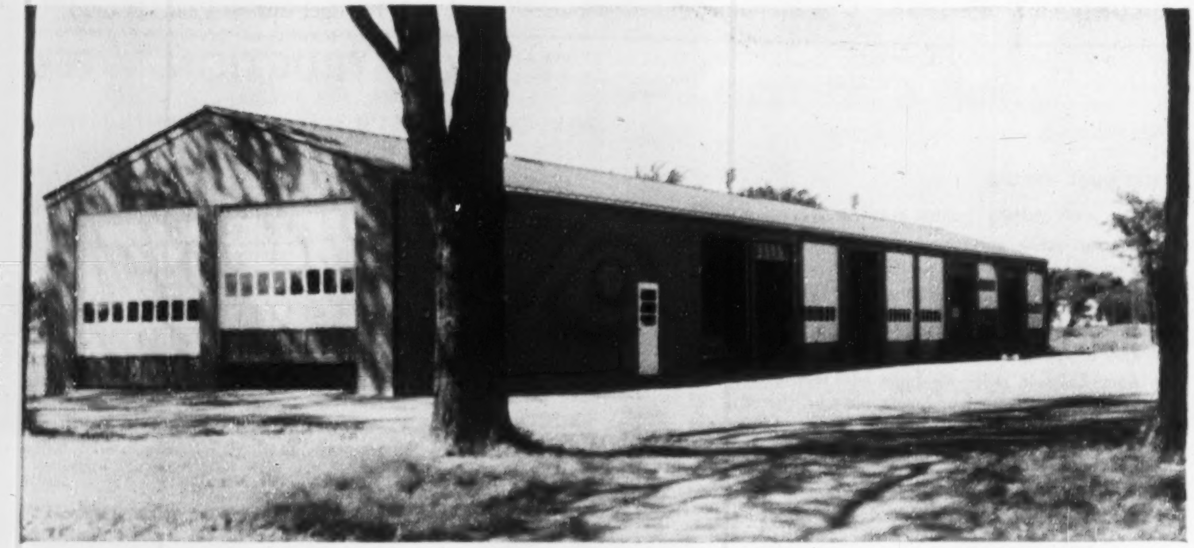
POWER SHIFT?—Observers are inclined to read a move toward holding down TVA's thermal power expansion in the White House proposal to shift something like 600,000 kw of the atomic energy load from TVA to private utilities over the next three years.

Such a shift, point out the pundits, would enable TWA to meet growing power demands without new steam plants in the next fiscal year.

IT ALL HELPS—Although putting themselves on record (for the first time for any agency in the state) in favor of a bond issue to finance general highway construction (to the tune of $2.8 billion), New York State's Temporary Highway Finance Planning Commission came up with this interesting comment:

Better roads (as recommended) would save the average New York motorist about $184.40 a year (out of which he could easily pay the estimated $38.54 tax now collected). The savings would figure this way, said the commission:

Savings on gas, tires and repairs would range from $25 to $100 a year; reduction in stops would save $31.25; higher average speeds, $109.90; fewer accidents, $18.25.



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With Armco Steel Buildings, you save time, labor, and money. The unique STEELOX panel method of construction provides both structural support and finished exterior in the same unit. Building erection is simply a matter of fitting adjacent panels together. Labor costs are held down and work goes fast.

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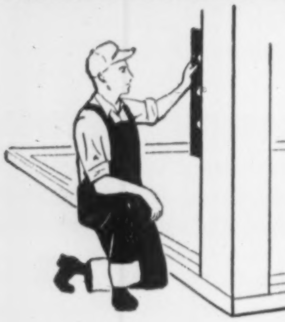
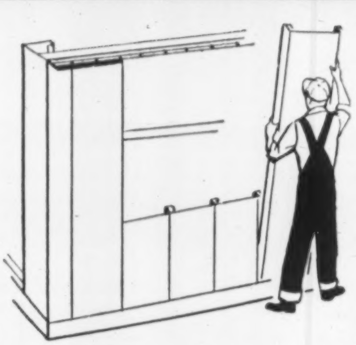
You can select an Armco Steel Building from the wide size range to meet almost any floor space requirement. When used on a temporary site, they may be dismantled and re-erected without loss of materials. Write for details. Armco Drainage & Metal Products, Inc., 1834 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

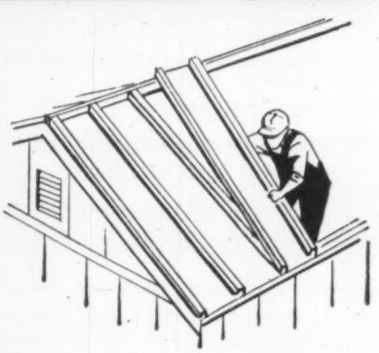
ARMCO BUILDINGS GO UP IN 3 STEPS



❶ Align corner sections.



❷ Set wall sections and bolt to base channel.



❸ Set roof panels on eave plates and ridge.

ARMCO STEEL BUILDINGS

WASHINGTON OBSERVER

The 20-odd new public works starts in the 1955 budget tips off a shift in the trend of construction by the Army Engineers. The Engineers see in it a shift back to smaller, higher justified projects for flood control and navigation—projects that were stopped by the Korean war.

Chief Engineer Gen. Sturgis outlined the shift in testimony to the Senate Appropriations Subcommittee on Civil Functions last week. He said it was urgently welcomed to handle individual flood control and navigation problems that had been shunted aside. Since before the Korean outbreak in June 1950—indeed, as far back as 1947—the emphasis in construction was on multi-purpose dams. Most Engineer money had been committed to such projects. And when the freeze went on, the money for Engineer projects funnelled even more to the big multi-year-to-complete projects.

•

The trend has been stopped in the '55 budget. There will be 87 projects abuilding in fiscal 1955, against 82 in fiscal '54. The new projects not only cover improvements of existing harbors and waterways, but give promise of faster work on urban defense against flood such as at Los Angeles and at the Kansas Citys. Even though such projects—take the bank stabilization work on the Mississippi for example, it was dropped $6-million for fiscal '55—may not get more this year, the cleaning up of the multi-purpose projects gives room for picking up where the post-war and Korean war periods stopped.

•

What Sturgis laid out to Congress was the Eisenhower Administration's first report on its stewardship and its lookahead in public works. For one, the Engineers and the Interior Dept.'s Bureau of Reclamation are settling some of their quarrels. And the Corps is working day-by-day with the Agriculture Dept. on upstream conservation.

Authorized projects are getting a going-over. Sturgis is willing to give up about a billion dollars in so-called "inactive" projects that never have got money from Congress for building. Either they aren't needed now, or local pressure has subsided. Anyway, he'd like to get them "deauthorized" so as to make a better showing on other projects.

The 268 waterway and harbor projects included in the Corps' maintenance programs in the last two years can be justified; that is, the benefits from such projects exceed annual charges. He wants to give the cold eye to any waterway projects for their feasibility the same as he has for construction projects—putting them into active, non-active for review, and inactive for deauthorization categories.

Sturgis wants a bigger appropriation for surveys. For one, the money will be used to reduce the backlog of construction projects; and two, the money is needed for better analysis of new proposals.

•

Atomic Energy Commission construction spending hits new peak early this year. Rise will be to near $125 million a month—accounting for about 5% of all construction expenditures in the country during the high month. It will then start leveling off so that average for first six months will be about $115 million—up $15 million above the average for last six months of last year.

Most of the money goes for the big production plants in Washington State, Tennessee, Kentucky, Ohio and South Carolina. But more expansion is coming on uranium ore-processing plants. There are already nine in operation. Anaconda Copper is considering building another in the vicinity of Grants, N. M. Kerr-McGee Oil Industries will start one near Shiprock, N. M. early this year. AEC is planning to expand its facilities at Monticello, Utah. and one or more plants may be built in the Moab, Utah, area.

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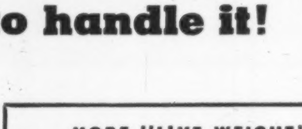

COMPARE ¾-yd. shovel-cranes with and without counterweight. That test spotlights the size, weight and heft built into the working parts and structural members. You'll find the LS-85 has more "live weight" than comparable machines.

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Housing, public works needs stressed in economic report

The President's economic report to Congress last week expressed confidence in continued high demand for the products of construction, especially housing and public works.

In his appraisal of the nation's economic health, the President cited these factors that augur well for construction activity:

- Despite heavy investment in recent years, there is no proof that industry has over-built. The outlook for new factories and other business construction therefore is good.
- Housing still has some catching up to do—with particular reference to cities, where vacancy rates were described as lower than "regarded as necessary for a healthy, competitive housing market."
- Public works, despite a steady rise, are still lagging behind the growth of the economy as a whole.

• **Cautious on industrial growth**—Of the three classes of construction, the President's language was most guarded in connection with private investment. It said surveys and contracts already let indicate a high level of investment spending for new plant in the early months of 1954. Death of the excess profits tax on Jan. 1 was cited as one of the stimulating factors.

Over the longer pull, the report pinned hopes on research which is developing new business opportunities. The following were mentioned in particular: scientific instruments, electronic computers, electronic process controls, communication equipment, atomic energy, heat and corrosion-resistant metals and alloys, high-speed cutting tools, materials handling equipment and heavy forge presses. Of these, atomic energy and the new developments in metals seem to promise the most by way of new building.

• **Confident about housing**—The President was more explicit on housing. "We are still confronted with a good housing market," he summed up. He told Congress that the movement to the suburbs, the high birth rate of recent years, and continued high incomes will out-weigh the depressing effect of the expected decline in new family formation.

The Administration's faith in housing is reflected in another way. In case of a business downturn requiring federal action, the President reminded Congress that he is now authorized to lower down payments and extend the length of federal-guaranteed mortgages. On a dwelling costing $12,000, for example, the present down payment of $2,400 could be cut to $600 by Presidential order. Mortgages could be lengthened from 25 to 30 years.

• **Certain of public works needs**—The most positive language of all, however, was saved for the prospects of growth in public works. The present rate of public works is "much smaller" than needed just to keep up, the report said. Eisenhower put streets and roads at the top of state and local needs. He estimated that construction and maintenance of an adequate road system would require $8 billion a year for 10 years, compared with the current outlay of $5 billion a year.

Schools were rated next. The need for replacement of obsolete buildings plus additional classrooms to take care of the war-baby generation, now reaching school age, was estimated at $3 billion a year for five years.

Hospital building could increase from the present $600 million a year to $1.5 billion a year for 10 years. Spending for water and sewerage needs could go from the present $500 million a year to $1.2 billion a year if the backlog of needs were to be worked off in five years. In all, this is a "massive accumulation" of requirements, the report stressed.

• **Ready to counter recession**—A quick get-away for expanded federal public works in case of a depression threat is also stressed in the report. The President revealed that last July the Budget Bureau had instructed all government departments and agencies to step up the planning of public works. These plans are not for immediate use, but are designed to boost federal spending for public works by 50% within 12 months—if needed to bolster the economy.

The tone of the report made it plain that Eisenhower and his economic advisors do not believe that 1954 is likely to require that sort of action. But the report did make plain what has been indicated piecemeal over the last year—that he is solidly on the side of those who believe government should use its vast powers to help maintain employment.

He bore down hard on the long-range responsibility of the government to keep the economy expanding. He argued that a stand-still economy will cause the same type of dangerous conflicts resulting from a shrinking economy. He said the government's job was to help living standards rise—and added that the peace in Korea should make it possible to undertake a "sustained improvement." Plainly, he is pinning much of this hope to the construction outlook.

Toll roads getting federal attention

Study rates 10,000 mi of main rural highways as feasible projects

The President's economic message revealed that toll highways are getting far more attention from the Administration than anyone had previously realized. The economic report said that only a small fraction of toll highway potential has yet been tapped. The statement refers to a special Commerce Department study which concludes that some 10,000 mi of main rural highway routes are potentially feasible as self-liquidating toll road projects.

Commerce undertook the study last spring, at White House request, to investigate the potentialities of self-liquidating highway projects in an anti-recession program. Effects of the study have gone far beyond the answer originally sought. Largely as a result of the findings, highway thinking of the Eisenhower Administration has swung pretty solidly behind toll roads as a partial answer to the problem of quickly overcoming deficiencies in main rural routes.

The study was made in the office of the Undersecretary for Transportation, Robert B. Murray, with Deputy Undersecretary Charles H. Dearing in charge. Merwin Sherberg of Dearings' staff directed the investigations.

• **BPR study**—Bureau of Public Roads people carried out the technical aspects of the study. There was neither time nor money to permit lengthy field investigations, with engineering surveys.

(Continued on page 22)

But BPR had both extensive data and an able staff to make adequate analyses of main rural routes.

As its basic aim, the study proposed to investigate all routes that carry more than 5,000 vehicles a day, plus other less heavily traveled routes of particular importance to the areas they serve. In all, the staff analyzed 28,000 mi of main rural routes.

These highways were examined for their present adequacy—their sufficiency ratings—and also as to plans, either active or programmed, for bringing the routes up to satisfactory standards. Any definite plans for such improvement killed off the toll road possibility, on the theory that private financing could never be found for a competing facility.

- **Volumes projected to 1957**—Traffic volumes were projected only a few years ahead to 1957. The men in charge of the study figure that 1957 is the earliest year by which potential projects could be completed.

Where conditions looked favorable for a competing toll highway, BPR engineers made estimates of the cost of the toll road. In some places similar estimates already had been made by other engineers for proposed toll roads. BPR cost figures for these areas were cross-checked against the existing estimates.

The test for each potential toll road was this: Is it feasible for private investor financing? In other words, does the toll road show ability to pay all costs, including the financing charges, on a basis of expected traffic and income? This test excludes all public assistance in any form, not excepting the use of state backing and credit to lower the interest rate on the bonds.

On that basis, the investigators found about 10,000 mi that showed potential feasibility as self-liquidating projects. This mileage is in addition to some 2,000 mi of toll roads now built or building.

The potential self-liquidating toll roads parallel present routes of the interstate highway system. Commerce officials estimate that the potential toll roads, in conjunction with those already in service or under construction, would take half of the traffic that presently uses the rural routes of the interstate system.

Because data are lacking to determine the feasibility of toll routes for urban areas, the study made no attempt to go into the possibilities of private financing for self-liquidating city expressways. Commerce transportation officials have no thought that toll roads can solve the city highway problem.

Toll roads, however are considered feasible for semi-urban areas, such as those served by the Westchester County parkways and the northern extension of the New Jersey Turnpike. Existing toll roads, they point out, are used by short-distance travelers as well as by long-trip motorists. An example is the 120-mi New Jersey Turnpike, where the trip average is now down to 44 mi and still declining.

Army Engineer shift

Air Force may receive manpower but contract procedure won't alter

Transfer of Army Engineer personnel to the Air Force will have no effect on relations of contractors and architect-engineer firms interested in Air Force projects. The Army Engineers will continue to have construction responsibility for Air Force projects in the U. S. Zone of the Interior and most overseas sites.

Earlier reports in the general press (ENR Jan. 28, 1954, p. 19) to the effect that some 30,000 Engineer troops engaged on overseas work for the Air Force had been transferred apparently were premature—and reflected some wishful thinking as well. The Corps has been placed under a manpower ceiling and would like to shift some of its personnel to Air Force—but no such shift actually had been made as of early this week.

The Air Force-Corps of Engineer agreement relative to the transfer of personnel already has been signed by the two service organizations, but awaited Defense Department approval as of Monday.

This agreement would make it possible for Army Engineer personnel voluntarily to shift over to the Air Force. According to Maj. Gen. Samuel D. Sturgis, Jr., Chief of Engineers, there will be absolutely no pressure on anyone to make the change. From his contacts with officers and men serving on Air Force installations, General Sturgis estimates that not one in fifty will want to make the switch.

There is no legal provision at present for Regular Army officers to make such a transfer. Presumably a Reserve or National Guard officer could resign and sign up with the Air Force. Similarly, an enlisted man could be discharged upon his request for reinlistment in the Air Force.

St. Lawrence power permit upheld by appeals court

A federal court of appeals has upheld the federal license granted to the Power Authority of the State of New York to develop the U. S. portion of the St. Lawrence power project.

Next step, if project opponents decide to take it, is to the Supreme Court. They have threatened to fight the license to the last ditch, but in view of the strong and unanmious appeal court decision there is a possibility that the fight will be dropped. Opponents have 90 days in which to make up their minds.

License for the 940,500-kw project was issued last July by the Federal Power Commission to the Power Authority of the State of New York. Both defended the action before the three-man court of appeals.

Opposition comes from the Public Power & Water Corp., which presented a conflicting application, Central Pennsylvania Coal Producers' Assn. and Lake Ontario Land Development and Beach Protection Assn. Their chief arguments were that the license violated the U. S. Constitution. The court found no violations. It held that the necessary international arrangements were made through the International Joint Commission, and found no evidence that the foreign commerce clause of the Constitution had been violated.

$150-million toll system approved in Oklahoma

Oklahoma voters last week gave approval to a $150-million toll highway program which will link the state with Texas, Kansas, and Missouri.

A special election to approve legislation for three new routes was forced by the Oklahoma Free Roads Assn. (ENR Jan. 7, 1954, p. 24).

Heaviest support for the new toll road projects came from the state's two largest cities, Oklahoma City and Tulsa—termini of the new 88-mi Turner Turnpike. Sleet and snow over much of the state helped to cut the rural vote and allowed a heavy urban poll to provide the winning margin.

The referendum put the old Oklahoma Turnpike Authority out of existence.

A successor agency with members from each of the state's six congressional districts is required by the new law.

Governor Murray immediately re-appointed Joe Jarboe of Tulsa to serve on the new body. He also named Kirk Woodliff, Henryetta attorney, and Norman Hirschfield, Oklahoma City utility executive. Three other members were to be selected in short order.

One of the first acts of the new authority will be too consider the re-appointment of H. E. Bailey, general manager, whose $20,000-per-year contract expired Jan. 15. Bailey has remained at work and was in the center of the organized campaign to pass the toll road measures.

Spanish base work to start by June

House testimony provides further details on extent of construction program, costs and personnel policy

Actual construction of the Spanish bases should get under way in May or June.

That is the prospective schedule outlined to the House Appropriations Committee by Rear Admiral John R. Perry, Chief of the Bureau Yards & Docks, in testimony released this week.

Master plans for the Navy and Air Force bases should be completed by the end of March, he said. Another 2 to 2½ months will be needed to get enough detailed planning done to permit the construction contractors to start work.

• **Eleven sites**—A total of eleven sites is involved. Four are Air Force bases. Seven are Navy facilities. Only one Navy site will be a major installation—the harbor and shore facilities near Cadiz. The six others are smaller, supplemental installations for such purposes as ammunition and fuel oil storage and an airfield. Depending on decisions regarding the size of the harbor and other questions, the cost of all Navy construction at present is estimated at $50 to $60 million.

Nothing in the testimony gives any hint as to the possible storage of atom bombs in Spain. But a recent announcement by Senator Case, chairman of an Armed Services subcommittee, said that his group has approved $11.5 mililon for construction of special weapons storage to support the Air Force's world-wide atomic energy program.

• **To build 570-mi pipeline**—For fuel delivery from the ports to the air bases, the Air Force program calls for a 570-mi pipeline. This line is expected to cost about $41 million, the Appropriations Committee was told by Major General Lee B. Washbourne, Air Force director of installations.

At the four airbases, existing Spanish fields will be greatly expanded for construction of Air Force installations. Work on the largest base, at Torrejon, near Madrid, is estimated to cost about $43 million, Washbourne said. Estimates for the other sites are: $30 million at El Copero, 5 mi south of Seville; $12 mililon (perhaps increasing to $14 million) at Moron, 30 mi southeast of Seville, and $13.5 million at Zaragoza.

For immediate start on construction in the current fiscal year, the Navy asked release of about $19 million of previously appropriated money, while the Air Force requested $40 million.

• **Will assign only 400 Americans**—Perry estimated that not more than 400 American nationals, both military and civilian, will be assigned in Spain on a full-time basis for the Bureau of Yards & Docks and its design and construction contractors. The construction contractors' American personnel in Spain, he said, will be limited to top supervisory jobs, estimated not to exceed about 250. That figure does not include specialists who would be in Spain for short periods. The bureau plans to use regular Civil Service construction inspectors to the extent available, supplemented by inspectors under separate engineering service contracts as required.

On use of Spanish subcontractors, Perry made a guess that only about 80% of the work could be subcontracted to Spaniards. For some of that subcontracting, he said, the prime contractors would have to send instructors to teach the Spaniards the use of American machines and methods.

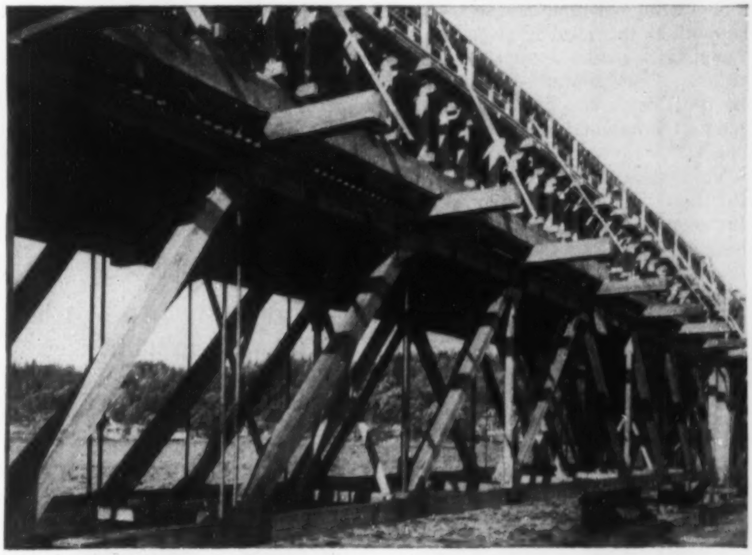
In comparing construction costs, Perry offered a tentative estimate that work in Spain will cost about the same as in the United States. For Air Force construction, however, Washbourne estimated that much of it—excluding certain features of a complicated nature—could be built for about 80% of American cost.

Appeals board named on earthquake code

An appeals board of architects and structural engineers has been created in California to deal with disagreements over earthquake safety regulations for schools.

The board will conduct hearings on disagreements with the State Division of Architecture over new or amended rulings and regulations governing the type of construction and materials. It also will hear disputes over plans. Appeals can be made by school boards, architects, structural engineers and any other parties who are directly involved.

The board consists of eight members appointed by the Director of Public Works and four ex-officio members.



113-ft wood truss falsework spans racing tides

To construct concrete bridge girders 125 ft long between piers, engineers for the job at tide-swept Hale's Passage, Wash., called for two falsework spans sturdy enough to be shifted several times for forming girders and long enough to be supported only at the permanent piers. Tidal action in the deep waters was deemed too strong for the safety of temporary piling support for the falsework. Chords of the wood truss are laminated to eliminate splices, and decking on the top serves as a diaphragm and provides working space. The falsework units were towed to the site on barges and positioned at high tide over timber bents placed on the permanent footings of the piers. As the tide receded the units settled into position.

Not long after the falsework was placed, the temporary trestle built on pilings for use in construction of piers and transporting supplies was destroyed partially by tides and waves. Contractor for the bridge is the Manson Construction & Engineering Co., Seattle, Wash. Timber Structures Inc., Portland, Ore., built the falsework trusses.

Mason contractors stress mechanization and building up supply of apprentices

Contractors engaged in masonry construction are faced with two problems of vital importance to their industry: How to increase the supply of apprentice masons, and how to reduce building costs through more efficient materials handling.

They believe they're on the right track in both endeavors. Their progress was revealed last week in Chicago at the fourth annual convention and equipment show of the Mason Contractors Association of America.

The drive to increase the supply of skilled brick masons by building up a larger reservoir of apprentices has both a practical and a psychological approach. Industry spokesmen see a real need for more skilled masons. They also believe that the building public would show a greater interest in masonry construction, once it is assured that there are sufficient numbers of craftsmen to do the work.

To these ends, the association adopted a resolution at the closing session of the three-day meeting—which had a total registration of about 750—urging the members to give full support at the local level to the national brick mason apprentice competition. These contests are sponsored by the Bricklayers, Masons and Plasterers International Union of America.

• Vote standardized pallet—Probably the most significant development at the conference, aimed at reducing building costs, was the adoption of a resolution standardizing the size of pallet for masonry materials. They voted to adopt a 24x32-in. package as the basic size of pallet for handling brick, concrete block, ceramic tile, and other masonry products. This size, however, may be subject to change as research and experimental studies, conducted by the association's research board in conjunction with other segments of the industry, may indicate to be desirable.

Both panel discussions of industry leaders and informal observations of several contractors at the convention agree on one significant point. Building costs can and will be reduced substantially as the industry as a whole learns to mechanize more highly its material handling operations. This applies all along the line from the point of manufacture of masonry products to their incorporation in the finished structure.

The emphasis on mechanized material handling was also apparent in several exhibits viewed by an estimated 3,000 persons. Exhibits included improved methods of packaging masonry products as well as motorized, hydraulic and hand-operated equipment designed especially for the masonry industry.

John Tahney, new president of MCAA.

• New officers—John Taheny, of Taheny Brothers Co., Chicago, was elected president, succeeding William F. Nelson, Washington, D. C., contractor. Newly elected vice-presidents are William R. Rainey, of San Francisco, and W. F. Robinson, Atlanta, Ga. Harold W. Peterson, Chicago, was elected treasurer, and R. R. Sneed, Nashville, was reelected secretary. George Miller is executive secretary of the association. Next year's annual convention will be held in St. Louis.

Bids rejected

Firm's experience is held unsuited to subway job

Lack of experience rather than inability of the low bidder to perform the work has resulted in the rejection of all bids on a section of the Dearborn-Congress Street subway in Chicago, Ill.

The multi-million dollar, 2,015-ft twin-tube subway project will extend from ground level at the west bank of the South Branch of the Chicago River, dip under the new Post Office building and several mainline railway tracks leading to Union Station, pass below part of the new 8-lane Congress Street Expressway, and connect with the existing Milwaukee-Dearborn-Congress Subway at a point 70 ft below the surface at the west bank of the Chicago River.

A low bid of $3,276,600 was submitted last year by the Santucci Construction Co., Skokie, Ill. In rejecting the Santucci bid, Chicago Commissioner of Public Works V. E. Gunlock said there was no question of the firm's ability to perform the work, but that the decision was based on the company's lack of experience in subway construction under these particular conditions.

Gunlock pointed out that Santucci had recently been awarded a contract for the construction of a new auxiliary subway, and that the firm had previously completed a number of sewer contracts for the city.

Toughest job in the projected subway work will be cutting off eight caissons supporting a section of the Post Office. This section of the building must be temporarily supported during construction and then will be supported by the completed subway. To further complicate the work, the entire length of the twin-tube subway must be constructed under compressed air, due to the soft clay underlying the street surface.

The subway project is being readvertised and bids will be received this month.

Plan to pool turnpike data put before road officials

A plan for coordinating toll road routes—and for pooling knowledge of how to build and finance them—came up for discussion at the recent conference of toll road commissioners in Kalamazoo, Mich. Participating states included Illinois, Indiana, Wisconsin, Florida and Michigan.

Such a program, it was pointed out, is advisable in order to forestall any demand for federal regulation of these roads. Tax exemption of toll road revenue bonds was another reason.

Road officials will meet later at a regional conference to develop the proposed program.

Indiana expects to open a portion of its turnpike from South Bend to the Ohio state line next year (about the time when Ohio opens a 211-mi extension from the Pennsylvania Turnpike). Illinois is studying a plan to continue the highway from Indiana west to Chicago and on to Davenport, Iowa. Michigan is considering a toll road from Ypsilanti to join the Indiana road at New Buffalo.

Mackinac bonds upheld

Final obstacle to construction of the Mackinac Straits Bridge has been swept aside by the Michigan State Supreme Court. The court dismissed a petition seeking a stay of proceedings in the delivery (by Feb. 15) of $99.8 million of revenue bonds. The decision affirmed the legislature's authority to pledge future legislatures to contract for future business.

Industry gears for atomic power work

The Atomic Energy Commission is getting ready to shift into high gear on its first utility-size nuclear power plant, the pressurized water reactor (PWR).

With preliminary research and development "well under way" at Westinghouse Electric Corp., there are these signs of progress on other fronts:

- Industrial firms, mainly electric utilities, are showing an increasing interest in participating in the project.
- Eisenhower budget for fiscal 1955 requests sufficient funds for the project to assure a rapid construction schedule. Congress is certain to go along.
- Policy decisions affecting organization, extent of outside participation, selection of site, design and other matters are expected within a few months.
- More technical information on the project is beginning to trickle out.

Although no firm proposals for sizeable industry participation were in hand last week, AEC officials had received a number of serious responses to its invitations. These were confined mainly to requests for information, but the tenor was enough to inspire hope for significant outside participation.

• **$42 million for construction**—Request for $35 million for the project during the next fiscal year, along with the $7 million now available, would be enough to cover the bulk of estimated construction costs. Since development and construction is to be carried on over a three- or four-year period, there would be no holdup because of lack of funds. It is still hoped that private sources will supply at least part of the financial backing.

Industrial firms still have until mid-February to come up with plans for participating in the nuclear power project.

Preliminary design is far enough along to give some indication of cost and engineering factors. Overall construction with an initial fuel loading is now estimated at around $45 million, of which the electric power generating plant would cost $9 million.

Officially the capacity of the plant is a "minimum of 60,000 kw" although outside sources estimated the capability may exceed 70,000 kw.

• **Open door**—The door is still wide open for any and all offers of industry participation in development and construction of the huge project, except for the tasks already assigned Westinghouse.

Possible areas of private participation include:

(1) Providing a share of the funds for design and construction of the plant.

(2) Providing the site.

(3) Operation of the plant either alone or in partnership with the government.

(4) Marketing the power produced at the plant.

(5) Providing technical assistance in the form of trained personnel to work with Westinghouse or other project contractors.

(6) Providing components of the plant as required by design specifications.

Other areas of participation will open up as the project moves along. Industrial firms are asked to submit any proposal which they consider reasonable.

Tunnel work changes hands as hot water ups the cost

Construction of the troublesome Tecolote Tunnel on the Reclamation Bureau's Cachuma project near Santa Barbara, Calif., is to be resumed under a revised contract that increases the net cost from nearly $7.8 million to about $12 million.

Carl M. and H. Halvorson, original contractors for the job, had been driving the 6½-mi bore from both ends when hot water under pressure stopped work last July in the outlet heading. Water temperatures of 112 deg. and a flow of 3,600 gpm, coupled with noxious fumes of sulfurous gases, made it impossible for men to work more than 30 to 45 min at a time.

The increase in contract price was agreed upon following the report of a three-man engineering board (ENR Sept. 24, p. 26).

Excavation of the upstream heading was completed last summer and that portion of the tunnel now is being lined to 7 ft dia. A stretch of some 4,700 ft remains to be driven.

Two new firms, Peter Kiewit Sons Co. and the Coker Construction Co., of Omaha, are taking over the completion of the tunnel for the original contractors. They plan to complete Tecolote in 20 months.

The changed contract anticipates water temperatures up to 130 deg. and discharges to 10,000 gpm. If those conditions should be exceeded, the contract will be reopened.

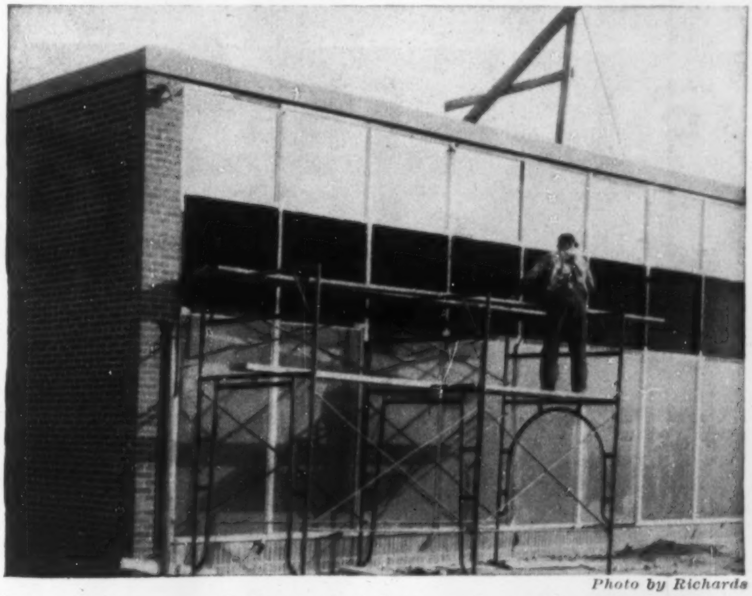


Photo by Richards

Porcelain-enameled sandwich panels enclose bank

Wall panels made of steel sheets enclosing a honeycombed, resin-treated core, plus some masonry and glass form the walls of three one-story branch banks now nearing completion in the Detroit, Mich., area. Exterior surfaces of the panels were given a poreclain-enamel facing, and the paper honeycomb inside the sandwich filled with perlite to act as insulation and a fire retardent.

The panels were set in calking compound inside aluminum frames; the finished surfaces require no additional painting and very little maintenance.

Costs of the panels are relatively high, but they require less structural steel due to reduced dead load, and there is a saving in maintenance, finishing, and space. Architects for the three branch banks are Harley Ellington & Day, Inc., Detroit, Mich. The panels were made by the Wolverine Porcelain-Enameling Co., Detroit.

Budget to delay three big dam projects

Army Engineers are extending construction schedules on three major hydroelectric and irrigation projects as a result of the President's budget message. The big three to be delayed: The Dalles Dam on the Columbia River, in Washington; Garrison and Gavins Point Dams on the Missouri River, in North and South Dakota, respectively.

If Congress approves Eisenhower budget proposals for major Army Engineer projects in the Pacific Northwest, target date for initial power output at The Dalles Dam will be postponed from 1957 to November 1958.

Observers in the area feel that unless private and public utility programs come along soon, the Northwest will be tightly pinched for power by 1957. Actually money budgeted for The Dalles is $3 million over the figure for fiscal '54 ($30.9 million), but the amount represents a slowdown from original schedules calling for the first power in 1957.

For Garrison Dam, the budget figure for fiscal '55 was the same as last year—$27.5 million. Failure to get a higher appropriation, according to Army Engineers, will make it necessary to delay advertising of bids for the Stage II Spillway project, which had been planned for 1954, to some time in 1955.

Stage II of Garrison provides for continuation of paving the spillway chute, the stilling basin and sidewalls. The Stage I contract—a $14-million job now 54% complete—provided for the following items: overflow structure, gates, bridge, and some upstream paving.

However, the rescheduling will not delay the production of power at Garrison as at present planned: The first of five 80,000-kw generators will turn over some time in April or May of 1955.

For Gavins Point, the $11 million earmarked in the budget is an increase of $700,000 over last year, but the amount still falls short of what's needed to keep on schedule. Power will be delayed from April to October of 1956. The powerhouse superstructure, which was to have been put under contract this June, is being rescheduled for some time in fiscal '55. Construction on the overall $60-million Gavins Point project is now 20% complete.

Rivers and harbors board seeks local views

The Corps of Engineers' Board of Rivers and Harbors recently held a public meeting in San Francisco—the first ever to be held outside of Washington, D. C. The session implemented a new policy of having open meetings of the group and, when possible, in the locality having the greatest interest in the subject matter. At the San Francisco meeting, the board endorsed a proposed federal study of San Francisco Bay. This would include a $730,000-hydraulic model of the bay to aid in investigation of navigation, water supply, related transportation arteries, flood control, salinity control, and irrigation. Data developed by state and federal agencies will be freely interchanged, but the study may cost as much as $2.9 million.

Movable walls with utilities featured in new medical unit

Metal wall partitions which can be set up at any 10-ft interval will contain water, gas, steam, compressed air and vacuum pipes for flexibility of laboratory layout in a projected $1.5-million medical building at Northwestern University's Chicago campus.

The movable walls will enable the staff to convert the laboratories to almost any size desired.

Scheduled for completion in 1955, the new 7-story medical unit will be the first new facility of its kind on the campus in 25 years.

Holabird, Root & Burgee, Chicago, Ill., are the architects for the structure and Ragnar-Benson, Inc., Chicago, will be the contractor.

Fort Randall Dam gates —a clarification

Clarification rather than correction is in order for the published account of the Corps of Engineers' field tests on vibration of the control gates at Fort Randall Dam (ENR Jan. 21, 1954, p. 23). Undue concern as to the safety of the gates may arise because of statements in the item indicating that the big 50-ton gates vibrate in several ways, and that damaging cumulative effects may develop under certain conditions.

The statements as published dealt with theoretical possibilities rather than any phenomena observed or believed to occur on the actual gates.

As a matter of fact, according to the Omaha District Engineer Office, the accelerometer tests show that the gates are remarkably stable in all positions under the head of water that prevailed during the tests.

Some roller wear has been observed during periodic inspection of the gates, according to the Corps of Engineers. But this is believed to be due to initial operations at low head when the seating load was insufficient to make the rollers revolve.

Toll road test case

While the constitutionality of Illinois' toll highway legislation is being tested in the courts, preliminary planning is being implemented by the Toll Highway Commission, according to Chairman Evan Howell. The test case was filed in a circuit court last month, and it is hoped that a state supreme court decision can be reached by April. If the toll road act is upheld, sale of bonds would begin in late spring. The commission ultimately may issue at least $500 million of bonds to finance a system of toll highways in Illinois, according to Howell.

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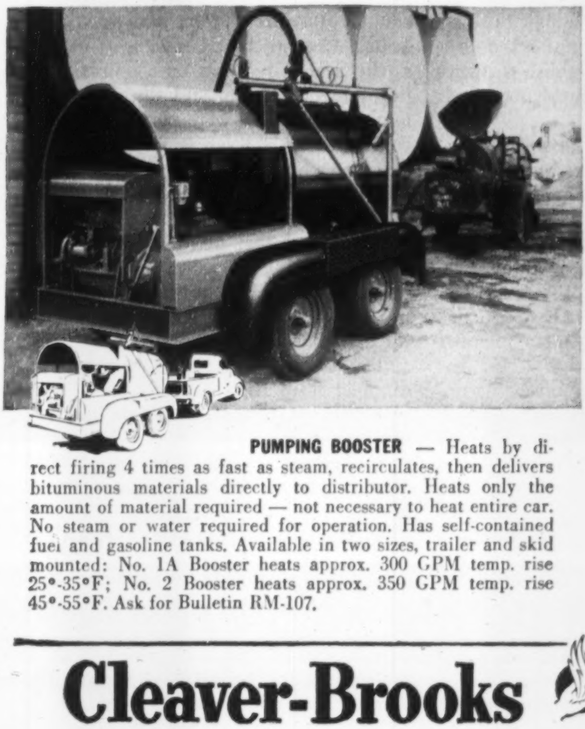

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LABOR

Labor's fear: not Taft-Hartley, but NLRB

Labor leaders have raised much more of a fuss over President Eisenhower's final appointee to the National Labor Relations Board than they have over his Taft-Hartley Act proposals, and they believe the Administration's T-H amendments would make the law "worse than it is now."

The fact that they have concentrated their heavy fire on the NLRB angle is significant.

This is where organized labor fears its troubles lie—not in the act itself, but in the way it is administered.

When the Senate Labor Committee called hearings on White House-selected Albert Cummings Beeson to be the fifth (and last) member of the labor agency, most onlookers expected a routine, run-of-the-mill affair. First a few polite questions, then a quick committee vote of approval, finally fast action by the Senate.

But it didn't work out that way. The sessions turned into a political battle royal, the Republicans and industry versus the Democrats and labor.

The NLRB has been suspect to labor ever since the first two Eisenhower board members were named. In the last seven months of operations, these new members have led the board in a reversal of important policies of the old Truman board.

The third Eisenhower appointee will give the board its first GOP majority in history.

These developments left congressional Democrats and labor champing at the bit. They decided to make Beeson an object of their wrath (pointedly stating that his honesty and integrity were not questioned) and teamed up to fight the appointment.

No matter who is approved, it does not end the fight; the scene will simply shift from Capitol Hill to board offices a few block away.

From now on watch for fireworks on any board policy decisions. The lines of administration are changing, and purposely. The old board, it is argued, was basically hostile to Taft-Hartley (being Democrats) and gave the act unsympathetic handling. The new decisions, the new members claim, more closely conform with the law's intent.

Already, the board has reversed policy on these critical issues:

- **Free speech**—Employers are no longer required to grant unions company space, on company time, to answer management's pre-election campaign speeches. (Reversal of the Bonwit-Teller doctrine.)

- **Jurisdiction**—Cases involving smaller employers are being rejected by the federal board, left to state agencies to handle.

- **Lockout**—An employer association is not now charged with "lockout" if it takes concerted action against a union striking one of its members.

This is only the beginning. Some key policy changes have been held up pending appointment of a fifth member. For one, the new men will hold the tie-breaking vote of the current four members in some important cases. (The split is between the GOP appointees and the Truman holdovers.)

He also may join in a new ruling on craft severance. The board is now reviewing policy on permitting AFL craft unions to carve out units in plants already organized down the line by a single industrial union.

Other important issues coming up for review include secondary boycotts, and, setting a clear-cut jurisdictional line. General overhauling of these policies will do more to alter the effect of Taft-Hartley on labor relations than any amendments that might get through Congress.

The Seattle incident: NLRB preview?

A recommendation by an NLRB examiner in Seattle, Wash., may turn out to be a bellwether of the board's policy toward the complex written and unwritten relationship of contractors and construction unions.

The West Coast examiner has held that a contractors' organization and a union are jointly liable with an individual contractor in discharge of a non-union worker.

This is the first time liability has been held to extend to a contractors' association, and, even though the case involves only a few hundred dollars in back pay, it can establish a precedent for other cases involving much larger amounts.

Here's what it's all about:

Last summer a University of Washington engineering student, Richard Kieburtz, was hired by the E. F. Shuck Construction Co. Three days later he was fired. His work was unsatisfactory, said the contractor. Not so, said Kieburtz, protesting that he was discharged because he wasn't a member of a union.

Claiming violation of his rights under Taft-Hartley, the student called in the NLRB. The contractor testified that hiring of the student had been in error, that he had been hired only for a specified, limited time, and that his work had been unsatisfactory. Kieburtz testified that he had tried to join the Seattle local of the Hod Carriers, Building and Common Laborers' Union without success, and that he had been told he was fired because he wasn't a member.

The local's business agent, Robert Buchanan, denied his union had called for the student's discharge, and testified he had told Kieburtz that five dollars would get him a work permit good for the summer, if he found a job.

The NLRB examiner, Wallace Royster, recommended back pay for the student.

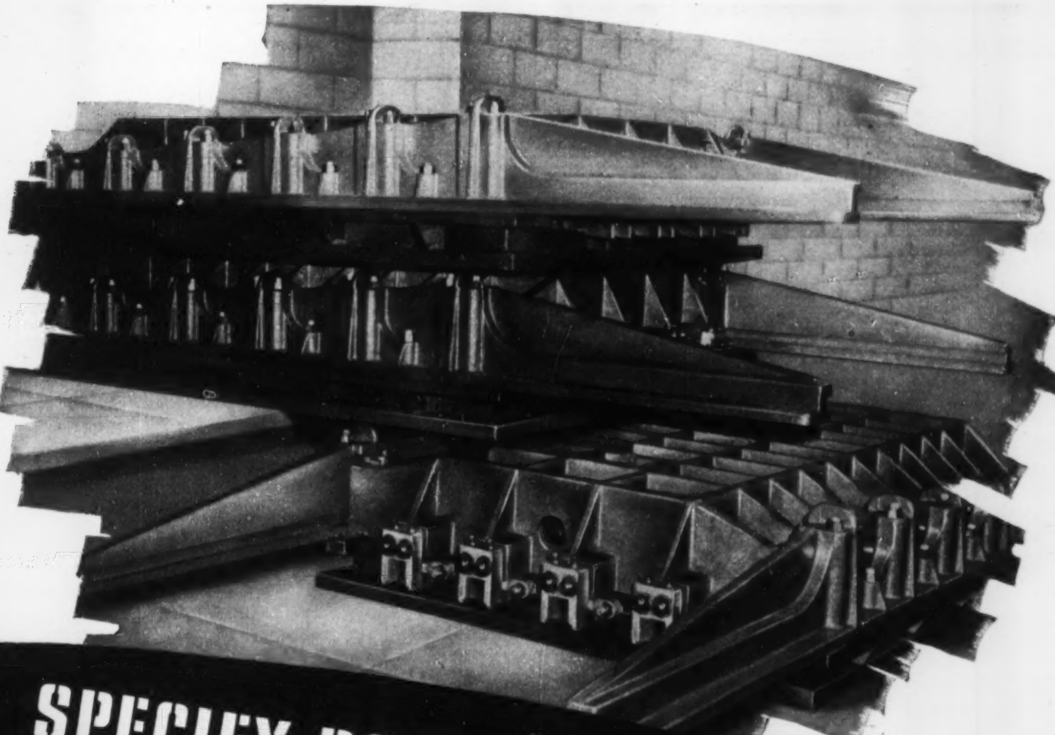
But that was just the beginning.

He extended his findings to an area contract, making mutually liable the Seattle chapter of the Associated General Contractors and its affiliate, the Seattle Construction Council, as well as the Seattle Building and Construction Trades Council and the laborers local—all of which were parties to the contract.

Royster branded as illegal clauses in the area contract that provided that AGC members would hire only union members and that extended terms of the contract to employers who were not members of the contractors' organization. He urged that enforcement of the contract be prohibited.

The objectionable clauses have been dropped from this year's contract between the AGC and the Seattle building unions.

Spokesmen for the labor board in Washington see no significance in the findings. But building union leaders view the Seattle examiner's recommendations as consistent with the changed outlook of the NLRB. They no longer expect the board—or the courts—to wink at agreements which bypass Taft-Hartley and which both contractors and unions have admitted made it easier for them to operate.



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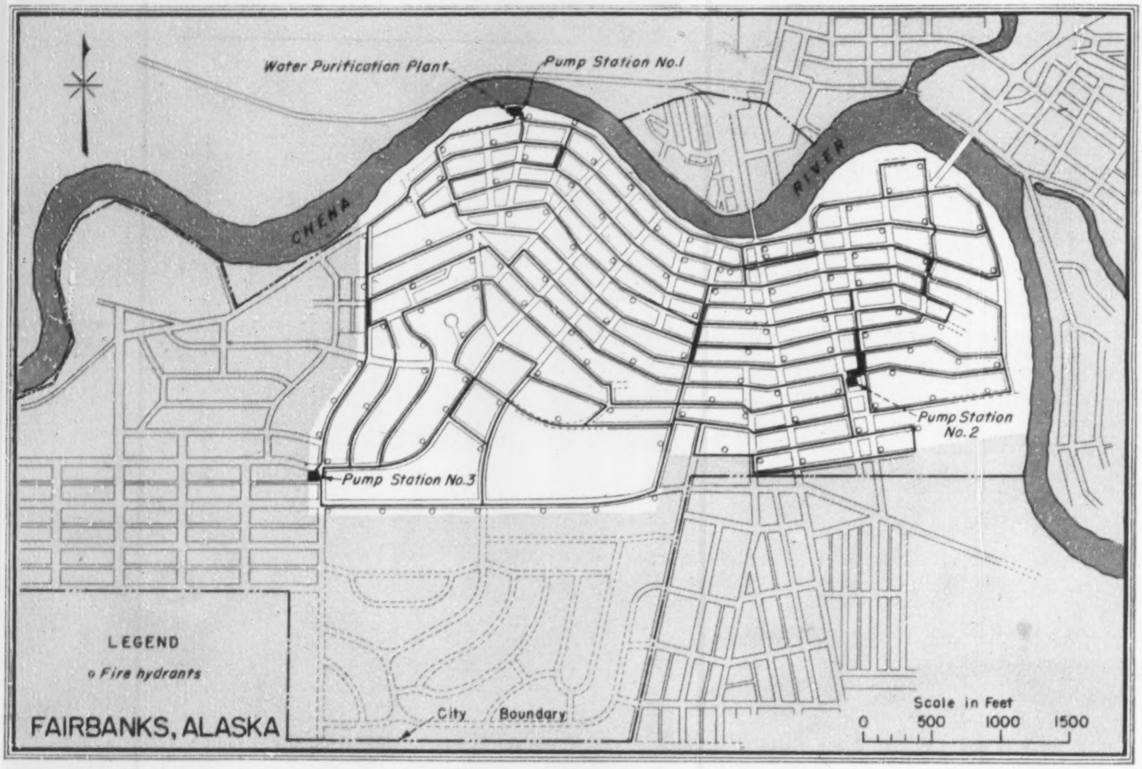


Distribution system for Fairbanks, Alaska, is designed by this principle for . . .

Arctic water supply: It must circulate or freeze

A single-main recirculating system has been designed to distribute water through Fairbanks, Alaska, 120 miles below the Arctic Circle. Water will be warmed first, then kept moving by pumps at 3 ft per sec through 18 miles of wood-stave mains and 25 miles of twin copper service lines buried 6 ft deep in soil as cold as 15F in winter. The partially constructed system is to be completed this year.

Booming Fairbanks has seen a 30% population jump since 1950, and its present 7,500 inhabitants are surrounded by some 20,000 people in fringe areas. The present water distribution system, limited to a small area of the business district and protected from freezing by steam tracers, is woefully lacking. However, the city does have a new 1-mgd purification plant.

Consultants R. W. Beck and Associates, of Seattle, Wash., virtually have had to disregard the existing distribution system in Fairbanks in preparing the new design. They borrowed Capt. W. B. Page of the Arctic Health Research Center, U. S. Public Health Service, who had done some model tests on single-main municipal recirculating systems, and moved into laboratories of Washington State College where details of the distribution were worked out by model study and use of the electric network analyzer.

• How cold?—Fairbanks, in the central plateau region of Alaska, has a climate similar to that of the north central United States. Winter temperatures normally range from 40 to −17 F, with −66 F the record low. But the winter is long; permafrost is prevalent, and seasonal frost penetrates as deep as 10 ft. No practicable frost-free depth is available at which to bury water pipes.

The problem then was to put pipe in ground that will freeze, yet not let water in this pipe freeze, and do the work at the least possible cost.

The solution chosen is estimated to cost $2.6 million—mains, service connections and pumps. Yearly operating costs, mostly for power to circulate water in the system, are estimated at $36,000.

Three other solutions of the problem were given full consideration and found too costly. A dual-main recirculating system was estimated to cost $3.5 million while offering no real advantage over the single-main idea. Both depend for success on circulation. which means uninterrupted pumping in winter.

A steam tracer system was figured; its total cost was estimated at over $4.7 million—40% of this for the steam installation. In addition, present sources of steam would have to be enlarged.

Utilidors were considered, but their cost for so extensive an installation as this water distribution system is prohibitive.

• How fast?—It had to be determined how fast water must circulate in the system to stay fluid in coldest conditions. Velocity has to be sufficient to limit heat dissipation, to prevent freezing.

Water in the system contains a definite quantity of heat; transfer of heat from the system to surrounding soil is also a definite quantity, when ground temperature is below that of the water. The trick is to put the water out with enough heat so that losses will not cause it to freeze before it gets back for more heat. The source of heat in this design is to be normally wasted condenser cooling water of the city's steam plant, right adjacent to the waterworks. Make-up water will be warmed, and recirculated water will pass through a heat exchange.

Heat loss per foot of pipe had to be figured. The Arctic Health Research Center supplied data on ground temperature; at 6-ft depth it will reach 15 F and average 27 F in winter. Thermal properties of backfill (a sand and silty loam mixture with 5 to 10% moisture) were taken from a report by M. S. Kersten, University of Minnesota. Heat conductivity was taken as 12 Btu per hour per square foot per inch thickness per degree F under worst conditions; 9 Btu/hr/sqft/in./deg for average conditions.

The wood stave pipe and a surrounding layer of soil were considered as concentric hollow cylinders in figuring heat losses—by usual formulas. And the 3 fps circulation velocity was determined.

• Network design—To keep a nearly uniform pressure throughout the system, the loop laid out has been given three booster pump stations. Make-up water for the system is to be independent of these circulation pumps, supplied by a group of pressure-controlled pumps at the water purification plant.

Network analysis was done electrically on a McIlroy Pipe Line Network Analyzer. This device eliminates tedious computations and does in minutes what might otherwise take days. It uses "fluistors" instead of ordinary resistors and thereby sets up an electrical relationship approximating that of water flow, pressure and pipe friction. Its ammeters and voltmeters read directly in gpm and ft. (See "There's an easy way out of your pipe network woes", ENR Aug. 30, 1951, p. 35.)

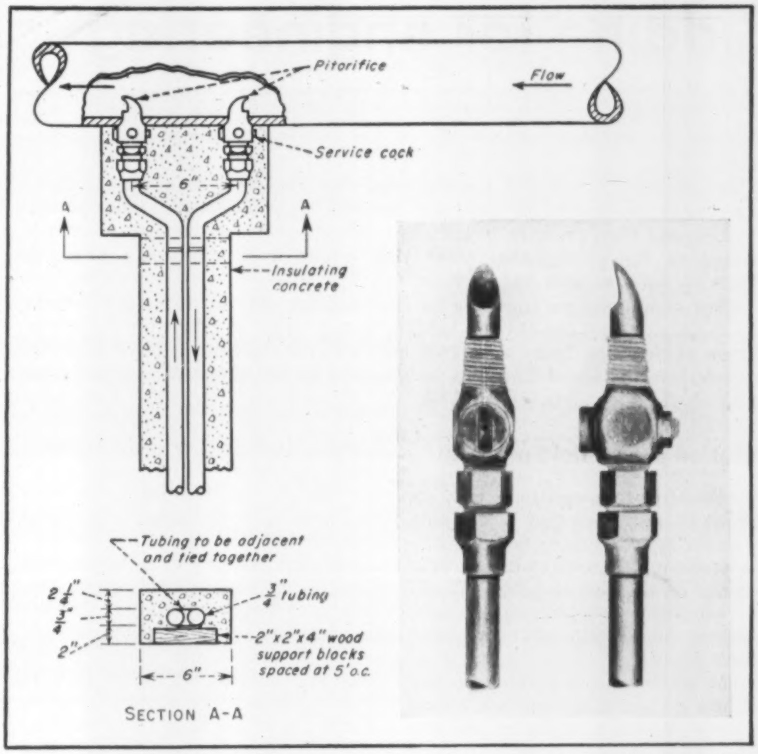
Three conditions of loading were analyzed: enough water to keep up necessary recirculation; enough to meet maximum hourly demand, while maintaining circulation; enough to handle peak fire load, while supplying average hourly demand and maintaining circulation. Pipe sizes were adjusted until desired velocities were obtained in all pipes under all three conditions.

• Two-way house connections—The single-main system had to have dual-line house services if water were to be kept moving, kept from freezing. And inserts into the mains had to be developed to permit necessary velocity in the service connection.

A limited number of scale model tests had been made previously, and the consultants tested a much larger number of full-scale inserts in the laboratory. A 4-in. wood stave main and ¾-in. copper service pipes were used in tests that produced an insert the consultant calls a "pitorifice". It is claimed to work as well for downstream as upstream lines, for return as well as take-off.

A study was made of heat loss from the dual service lines, which are to be tied together in the ground for heat transfer. Thermocouples on full-scale models provided loss per foot.

Donald H. Eyinck, city manager of Fairbanks, is credited with encouraging development of this unusual distribution system design. For the consulting firm, R. W. Beck and Associates, John R. Wallace, Jr., principal engineer, is in charge of the design and construction division and H. C. Westfall, supervising senior engineer, is project engineer of the work. Lt. Col. K. E. Day, of the Public Health Service's Arctic Health Research Center and A. J. Alter of the Alaska Department Health Service cooperated with the consultants.


Pitorifice
Flow
Service cock
6"
A
A
Insulating concrete
Tubing to be adjacent and tied together
2¼"
¾"
2"
¾" tubing
2"x2"x4" wood support blocks spaced at 5' o.c.
6"
SECTION A-A

DEVISED CONNECTION of twin service lines to main provides for circulation into each building and back out again. Special insert called a pitorifice produces desired flow.

Sewage treatment rules are set for last lap of Ohio River

Sewage treatment standards have been completed for the 981-mi length of the Ohio River. The last lap was covered when the Ohio River Valley Water Sanitation Commission adopted control measures for cities along a 500-mi river stretch from Cincinnati to Cairo, Ill.

All communities that discharge sewage into the river have been notified as to what degree of treatment they must provide. State pollution control agencies have taken the first step to insure compliance.

Some cities already have initiated measures to abate pollution. Treatment plants are in operation in 11 Indiana and Illinois communities.

Laying a 574-mi pipeline part of Tennessee Gas plan

Tennessee Gas Transmission Co. plans a multi-million-dollar construction program for this summer. Jobs include laying approximately 637 mi of pipe, building two new compressor stations and enlarging five existing stations.

A 547-mi, 30-in. pipeline will start near Kinder, La., extend through Mississippi and Tennessee, and join the existing system near Portland, Tenn. In addition, 63 mi of 26-in. pipeline will be laid parallel to sections of the present system in Ohio and Pennsylvania.

New compressor stations will be built near Coudersport, Pa., and Findley Lake, N. Y.

Bidding for engineering services

Part of the comment that has been received on an editorial "Bidding for engineering services" in our issue of Nov. 19, 1953, p. 167, was published in the issue of Jan. 28, p. 42. Further comment is presented below:

The editorial of Nov. 19 recommended that the civil engineering profession remove the stigma of unethical practice from bidding for engineering services, and then promote a procedure reflecting sound business, but still holding to the professional tenet that qualifications outweigh price in obtaining good engineering services.

What stimulated our thinking on that subject was the fact that despite prohibitions against competitive bidding in most codes of ethics for engineers, fifteen engineering firms submitted bids to C. R. McMillan, chief highway commissioner of South Carolina, in response to an advertisement for such bids, which was published in ENR.

Solution is a twofold problem

SIR: Your editorial properly calls attention to a situation that is becoming of increasing concern to the engineering profession. I refer to the growing practice on the part of public officials of procuring engineering services through some form of competitive bidding.

The situation is disturbing on two counts: it violates the engineer's code of ethics, and it tends to prevent the purchaser from obtaining service of the highest quality. Since there is some relation between the quality and the cost of engineering services, I also can see some danger that extension of competitive bidding in this field may result eventually in a general lowering of the quality of service supplied.

A realistic view of the present situation must recognize that many public bodies are required by law, or believe themselves to be required, to purchase all services, including engineering, on a competitive basis from the lowest responsible bidder. The qualifying adjective "responsible" is interpreted largely to mean financial responsibility. It is also true that in many cases procurement of engineering services rests chiefly in the hands of financial and administrative officers who may not appreciate fully the substantial effects on over-all project cost and on project value which stem from the quality of the engineering. Such people naturally tend to assume that all engineers are equally qualified, and to purchase purely on a price basis. Having no standard of comparison, they seldom discover the error in this procedure.

The engineer who practices in the field of public works, particularly, is placed in a difficult position. Either he bids and violates the code of ethics, or he abandons to competitors who are not bound by the code a field in which he is well qualified. The engineer's decision is not made easier by doubts which may arise in his own mind concerning the propriety of including in a code of ethics a prohibition against compliance with a requirement of law.

I am opposed to procurement of engineering services by competitive bidding as a bad practice—bad for the client and bad for the engineer. Certainly, it tends to put a premium on price and on cost, at the expense of quality. It does not appear, however, that to bid or not to bid is in itself an ethical question, but rather, that it is a question of what is good for the purchaser and, concomitantly, what is good for the profession.

The solution of the problem is twofold. The prohibition against competitive bidding should be removed from the code of ethics, where it now serves principally to make hypocrites of otherwise ethical engineers and invites disregard of the entire code. At the same time, the profession should strongly condemn the practice of competitive bidding for engineering work and should undertake a vigorous and extensive program of education to acquaint both engineers and the purchasers of their services with the disadvantages and the inherent dangers of the method.

I hope that ENGINEERING NEWS-RECORD, an organ having great influence with buyers and sellers in this field, will continue to assist in such a campaign.

O. S. BRAY
Jackson & Moreland,
Boston, Mass.

A fee might be fixed first

SIR: Your editorial on the suggested modification of the code of ethics to permit so-called regulated bidding appears to be based on the fallacious assumption that for the same scope and caliber of service on a particular project, the engineering costs or the engineering profit may vary as much as 100% depending upon which engineering organization does the work.

Engineering salaries plus overhead represent an average of 80% of the total fee. It should be quite apparent, therefore, that when there is such a wide variation of fee as you cite in the editorial the variation is due entirely to a wide difference in the scope and quality of engineering service that the individual bidders propose to furnish.

No ethical consulting engineer will do anything less than his best work on any job he undertakes, nor will he curtail either the scope or quality of his service to meet competition that is based solely on price. However, he is at all times perfectly willing to compete with his fellow engineers on the basis of his technical and professional ability to do a particular piece of work.

If competition is mandatory on public work, public authorities might better establish an equitable fee to be paid regardless of the engineer selected and invite various engineers to compete in the matter of their qualifications to do the particular job. Such competition could be based on the engineer's experience in the particular type of work, his financial standing, the personnel that he has free and available to do the job aside from his existing commitments, any advantages of geographic proximity to the job or to the client, and the other numerous factors that have direct and important bearing on the ability of an engineer to render the best possible service on a project.

JOHN F. HENNESSY
Syska & Hennessy,
New York, N. Y.

A grave dis-service

SIR: A study of the evidence contained in your editorial on bidding for engineering services can only lead to the conclusion that you have contributed a grave dis-service to the engineering profession. Hence we take this opportunity of joining others in submitting our strong opposition to the stand you have taken.

Your premise that the professional societies are "merely tilting at windmills" is basically unsound and morally wrong. Neither the existence of antiquated local laws nor the acceptance of their requirements by a few who act contrary to their own ethical codes, should be cited as causes for changing ethical standards. Violation of the Golden Rule does not lead us to the assumption that it is wrong and should be changed. The codes of ethics adopted by our societies are founded on the morals and principles that are the very foundation of our way of life.

The essential ingredients of professional services are technical ability, experience and judgment. If only the functions of technicians were involved, bidding might be a proper basis for the determination of our fees, but we profess to be engineers rather than mere technicians. The true measure of the value of an engineer's professional services is the use of his judgment in solving the problems of his client. No competitive bidding can ever be devised which will place judgment of the engineer on the auction block; for the important element of the engineer's service is primarily his judgment as tested and tempered by experience. Competitive bidding is a very bad way to try to evaluate engineering judgment.

We note the great emphasis on the variation among bids. We are surprised that the differential is not greater, and certainly in no way strengthens the viewpoint that competitive bidding for engineering service is desirable. The difference undoubtedly represents the amount of service that would have been given by the various firms, plus a variable factor of experience and judgment available. It is this factor that cannot be judged on the sole basis of lowest first cost.

Mr. McMillan's contention that the results would be the same "since in either case the major considerations would have been the experience and ability of the engineers and the fees to be charged for the work," is not founded on actual practice. The idea as stated sounds reasonable, but it is not practicable, and does not work as indicated or intended. The only reason for an agency requiring bids is to obtain the lowest possible price, with very little consideration to added factors. If that were not the case, it would indicate that only a request for an interview would be all that was necessary to meet such "bid" requirements.

Your argument that prohibition of competitive bidding offers no effective bar to keep unqualified men from obtaining jobs is in error. It seems that you are placing the cart before the horse. In the instance of competitive bidding as outlined in Mr. McMillan's letter, he notes the receipt of fifteen bids from which he can make his selection. On a non-price bidding procedure the governing agency could choose from the entire profession, and not even be required to consider those not qualified. It is that simple!

It seems to us that in your concurrence with such procedures, you are compounding grievous errors that are plaguing the construction industry as applied to public works. For the sake of eliminating "politics," we have attempted leveling off on a price basis throughout this field. First of all, our top men are not paid enough to attract the best men in their respective fields. After that, in the event we do get competent individuals — and fortunately for our profession most of them are that—we proceed to hamper them with price gages, forcing acceptance of the lowest prices; not the greatest values, mind you, but the *lowest initial bids*.

And, now to add to the comedy of errors, we're going to remove the "only" controls in determining value received, by limiting such professional services to a "low price bidding". Since when has "cheap engineering" resulted in savings to the public? Let's not try selling such procedures, when we know that it's unsound from the start. You urge recognition of a sound idea; we concur, but cannot see anything sound in competitive bidding for professional services. It can work only *one* way, and that is acceptance of the low bid.

The Defense Department has found it undesirable to use competitive bidding in obtaining engineering services. Other government agencies also go along with this practice. Surely if this can be done on a national scale, the entire profession should not change its method of operation for the sake of some isolated laws or rulings. In our opinion, the South Carolina laws should be changed to comply with good codes of ethics, rather than the other way around.

Our Board of Directors is firmly on record that such an attitude is contrary to the best interests of the engineering profession, and has directed this letter of protest.

Structural Engineers Association
of Southern California
Ben Benioff, President
Los Angeles, Calif.

More disciplinary action needed

Sir: Your editorial opens a "Pandora's box" of future problems for the profession by advocating removal of the existing stigma of unethical conduct from those who participate in competitive bidding on a price basis to obtain a professional engagement.

Because one state or several states may still have laws requiring advertising for bids on all contractual services, including professional engineering, does not mean that they are right and the ethical standards of our profession wrong. For many years the legal and medical professions, followed later by our own, have been leaders, not followers, in recognizing the inherent dangers of certain practices and through their societies have set up ethical standards to condemn them. The fact that the societies are slow or even completely negligent in their disciplinary action against violators is no argument against the standards. Instead it is a powerful argument for selecting engineers of the highest integrity and resolution for our committees on ethical practices. It probably also points up the need of a continuing educational program by such committees to inform engineers fully of the content and meaning of all ethical codes and recommended practices.

We must sympathize with Mr. McMillan who was placed in a difficult position in his dual role of a professional engineer and also a high administrative officer of a state whose laws required him to request engineers to bid competitively against each other for a professional engagement. His letter was an excellent statement of the practical side of the problem.

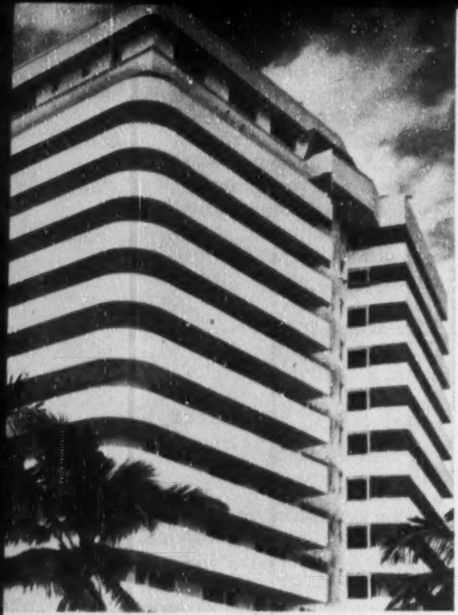
However, I differ with his opinion "If, however, this code [ethical code of the American Society of Civil Engineers] would act to prevent a state department from obtaining desired engineering services without violating the statutes governing its operation, it would appear that the code was in need of major revision." Without attempting to be facetious, is it not possible that the change should be made in the other direction of revising the state law to permit the retaining of consulting engineers on a wholly professional basis?

Further in Mr. McMillan's letter he makes the following point: "Fifteen bids were received for these services, and while no award has been made, it is evident from data on hand that most of these firms are fully qualified to perform the work." This implies that a preliminary evaluation of the competence and reputation of all bidding firms was not made so that bids would be accepted only from firms fully qualified to perform the work in accordance with the highest professional standards.

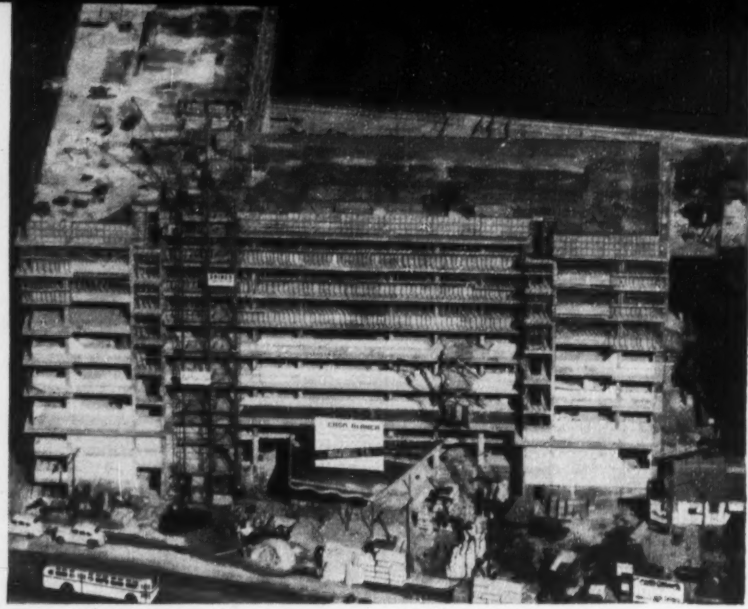
The acceptance of all bids, without a preliminary evaluation to eliminate firms not fully qualified, is a common practice and one of the serious arguments against the award of professional work by this method. It would take a person endowed with superhuman qualities not to be influenced by low bids often submitted by firms which do not understand all the engineering problems involved.

The influence of these low bids is apparent in the following paragraph of Mr. McMillan's letter:

(Continued on page 36)



The 300-room ocean front Sherry-Frontenac Hotel, Miami Beach, towers 13 stories, cost $4 million. Steeltex throughout in floors and roof. Henry Hohauser & Associates, Architects. Cashay Corp., Contractors.



The 9-story Casa Blanca Hotel, Miami Beach, shown here while under construction, is now in operation, cost $2.2 million, has 250 rooms. Steeltex used in all floors and roof. Roy F. France & Son, Architects. Gaines Construction Co., Contractors.

Biscayne Terrace Hotel in downtown Miami has 200 rooms, 10 stories, cost $2 million. 250,000 square feet of Steeltex in floors and roof. Albert Anis and Melvin Grossman, Architects. Edward M. Fleming Construction Co., Contractors.

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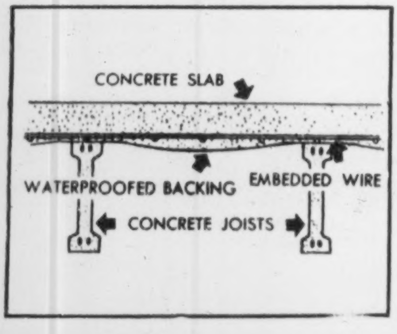
Southeast Florida is one of the fastest growing regions in the country and Miami Beach has the largest concentration of hotels, motels and apartments of any city in the world—more than 375 hotels containing more than 25,000 rooms and some 1,400 apartment buildings containing 36,000 rooms! Here unusual designs are commonplace, the architect is free to use ideas to his heart's content. People who come to Miami Beach are on vacation, they are free to pick and choose the most modern, most beautiful, most comfortable surroundings for their visit to this vacation paradise!

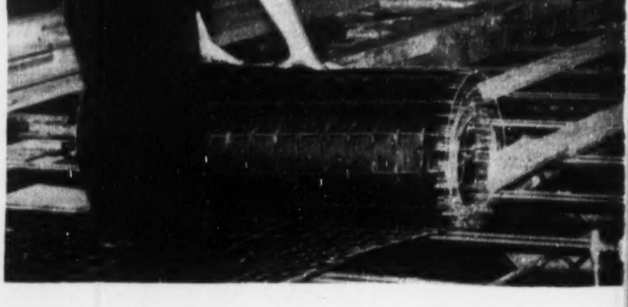
The men who invest their savings in these new buildings want modern design with economy, speed in construction and low maintenance costs in the finished building in order to get a maximum return on their investments.

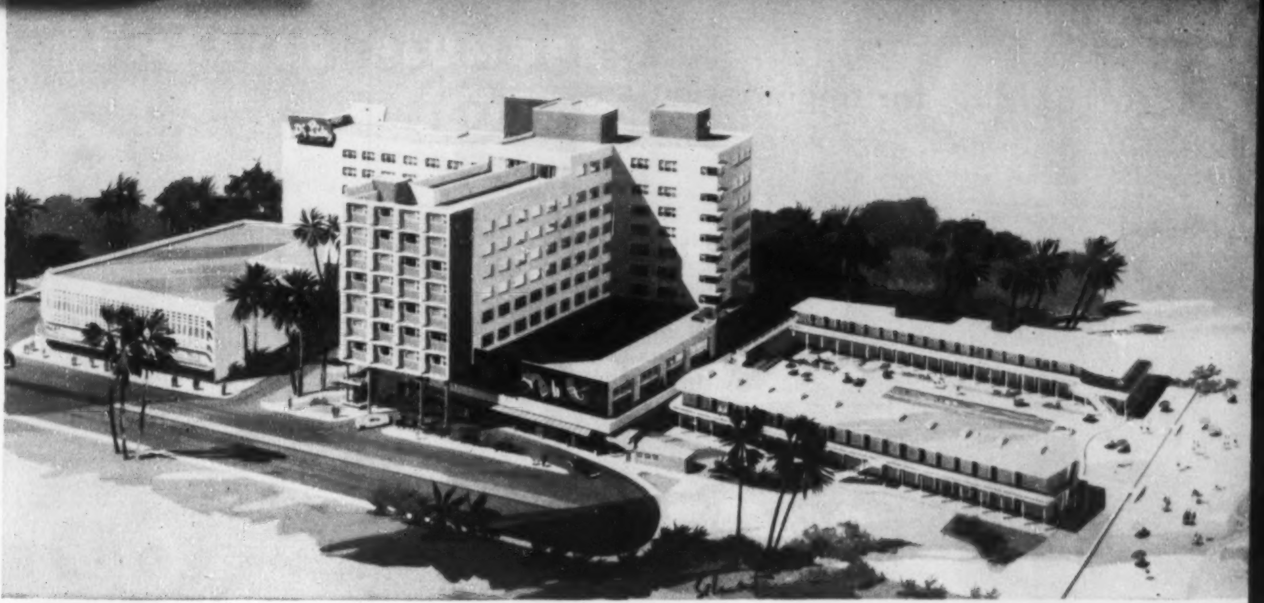
Concrete, therefore, is the answer and when you use concrete it is only natural to use Steeltex floor lath, the modern, time-and-money-saving, galvanized steel wire reinforcing for concrete which *carries its form on its back* (see cross section below).

Why Steeltex? Steeltex requires no additional forms or reinforc-



NOTE: In the cross section that the weight of the wet concrete forces the backing away, which permits the galvanized steel mesh to assume its proper position in the slab. Steeltex floor lath also performs two other functions: It permits work on the floor below while pouring is in progress and retains moisture to assist proper curing.





A complete vacation resort under one roof, the $3.5 million DiLido Hotel, Miami Beach's newest, opened last Christmas Eve, has 329 rooms, 9 stories, 2 swimming pools, 300 feet of ocean beach, 120 cabañas. Steeltex used in floors and roof. Melvin Grossman and Morris Lapidus, Architects. Robert L. Turchin, Inc., Contractors.

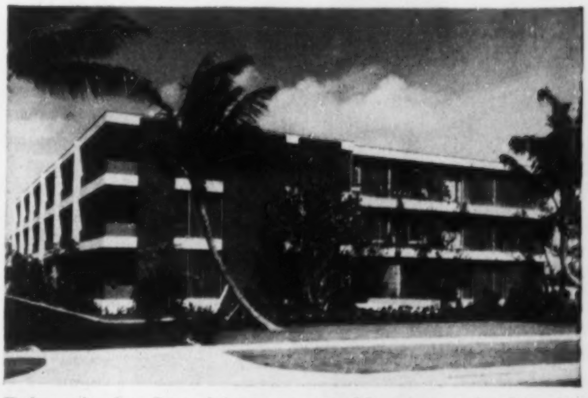
favorite for reinforcing newest hotels and apartments!

ing. It costs less to install than other types of forms and reinforcement for concrete because Steeltex can be rolled out like a carpet by one man (see photo below). Steeltex also saves concrete by minimizing leakage in the freshly poured slab—craftsmen on the floor below can continue working without getting drenched. Steeltex insures a strong floor because embedment of steel reinforcing takes place automatically (see note below). Steeltex allows concrete to cure slowly and properly—guards against excessive cracking—can be installed over any type of joist—will support ample safe loads from 109 lbs. to 886 lbs. per square foot depending on spacing of joists and thickness of slab. No wonder Steeltex is the overwhelming favorite with building designers in America's favorite winter resort.

Regardless of your locale, be it north, east, south or west, if your building plans call for poured concrete floors, roofs, plaster walls or ceilings or Portland cement (Stucco) exteriors, there's a type and kind of Steeltex reinforcing that will do the job better, faster, with less effort at lower overall cost.

See the Steeltex catalog in Sweet's or write for your free copy of a new 24-page, illustrated booklet "Pittsburgh Steeltex, Backbone of Concrete, Plaster, Mortar."

Algiers Hotel, Miami Beach, cost $1 million, has 8 stories, 200 rooms. Steeltex used in all floors and roof. Henry Hohauser & Associates, Architects. Taylor Construction Co., Contractors.



Prize winning Lanai Apartments, Miami, contains 24 units, took top honors in apartment house class in judging at A.I.A. South Atlantic Regional Conference in Miami last spring. Steeltex used only in second and third floors. Wahl Snyder, Architect. Alonzo Riley, Contractor.

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. . . Bidding for engineering services

> It might also be interesting to note that the bids varied from less than 3% to more than 7%. This wide variation would seem to indicate that the only way of establishing a fair price for such services is through competition—either openly as required by statutes of this state or informally.

It is pertinent to note that a recent study by a committee of the New Jersey Society of Professional Engineers, which made comparisons of minimum fee practices recommended by many state societies, submitted a report which recommends a minimum professional fee for Class III work (which includes the design of movable bridges) of approximately 6%; with a variation measured in tenths of a percent dependent upon total construction cost. The low bids in this instance were 50% of the minimum recommended by a responsible professional group for this class of work.

In your editorial comment you included the following paragraph which is a good summation of the principal argument running through the editorial:

> It may readily be conceded that it would be unwise for a buyer to accept the lowest price regardless of other considerations, and unwise, too, for an engineer to bid low in an attempt to get a job for which he has neither the qualifications nor the facilities. In either case, however, it is merely poor business judgment and not ethics that is involved. And in either case the punishment is inherent —for the engineer—and not merely threatened in the form of some sort of disciplinary action when a violation of ethics is charged.

The reasoning in this paragraph might have more merit if it were true that the only persons suffering ill effects from such practices were the buyer and the engineer with the tarnished reputation. However, I believe none will argue the point that a failure or poorly executed assignment by an engineer has a way of being broadcast so that the professional standing of all engineers is adversely affected. In the matter of the buyer, there is also more involved than an inferior product which damages only the buyer. A poorly designed structure or industrial plant may be the cause of serious injury or death to employes or the public.

There are other arguments against the practice of engineering by firms which do not follow ethical standards or who offer "cut-rate" fees. The effects of such operations are not always immediately apparent and yet they can affect a majority of individual engineers in a matter of a few short years.

Using a practical argument, which seems to be the basis for your editorial comment, it must be evident that a firm which attempts to operate at 50% of the fee recommended by a responsible committee of a state professional society, must have its own economics as a primary consideration. Considering only the relationship of such a firm to its employed professionals; it must promptly lay off engineers in slow periods and must also hire at the lowest possible salaries consistent with the law of supply and demand. Where it has taken an assignment at a fee which does not permit the employment of fully qualified professionals at the going rate, there is only one solution; use lesser qualified men at lower salaries in order to leave some margin of profit or reduce its operating loss.

Such practices result in a final product which is seemingly acceptable but seldom executed in a fully professional manner. The continuance of such practices—comparatively low salaries, abrupt termination of employment and consequent lack of security for engineers, must result in a self-protective banding together of engineers for their own collective security.

A convincing case for relaxation of ethical standards can easily be made, particularly in a period where many firms are anxious to compete aggressively for work. However, I believe that this apparently simple wedge driven into the professional code of ethics contains too many hazards. In effect, your editorial has pointed out the increased need for protective vigor on the part of engineering societies rather than relaxation of their standards.

James P. O'Donnell
James P. O'Donnell, Engineers
New York, N. Y.

A better solution can be found

Sir: I do hope you will regain confidence in engineers' having the capacity to make the attainment of professional standards more than "merely tilting at windmills."

Your editorial recognizes that the conditions in laws that require competitive bidding are facts; and concedes that we might as well cut our professional robe to fit them. I agree we must fit the conditions that underlie such laws. But I should like to see us surmount the faulty requirement of competitive bidding for professional services and come out with even more recognition and greater security for our professional status.

The underlying condition in laws requiring any type of competitive bidding is the protection of the taxpayer. The assumption is that competitive bidding precludes costly favoritism or graft by the obtaining of specified needs at honest prices.

If legislators are unaware that engineers render professional services the results of which cannot be specified in terms of price; if they are unaware that the services themselves are not honestly measurable on a price basis, I should say this lack of recognition is the fault of engineers.

Our recourse is to remedy this fault through our own actions:

1. By the insistence of engineers that such conditions be changed.
2. By the refusal of engineers to meet such conditions.
3. By the formulation by engineers of a set of model conditions for legislation on the handling of public work that will satify legislators that the public purse is protected and will satisfy engineers that their professional standards are safe.

The third recourse, coupled with the first, is the crux of effective solution. The problem is ours, not one for the lawmakers. What this course can be I am not prepared to state out of the thin air of presumption.

But I do state that just as we are capable of determining, analyzing and formulating a positive course from the facts that control physical problems, I am confident we can explore the problem of competitive bidding for professional services and formulate model legislation that will represent a positive course in the interests of the public and the standards of professional men.

Frederick H. McDonald
Charleston, S. C.

Effect would be bad

Sir: Your editorial presents a matter of very real concern to all engineers.

I agree with the solution you suggest in the first full paragraph on page 168 in so far as it suggests submission of proposals for engineering engagements, which proposal should include a very detailed statement of the extent and character of services to be rendered by the engineer and the proposed compensation therefor and may be accompanied by an outline of the engineer's qualifications, which, no doubt, would consist of a list of similar projects embraced in his past experience. However, I should regret very much to see this procedure generally carried out in the same manner as governs the purchase of materials or contracting for construction work through the medium of public advertisement for

(*Continued on page 38*)

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. . . Bidding for engineering services

bids and public opening and reading thereof.

Such procedure, I fear, would tend in the long run to have seriously adverse effect on engineering services generally. I believe this because I think it would become increasingly difficult for public officials under such circumstances to pass over the lower first, second or third proposal in making the award, as the public generally would have no means whatever of evaluating the services to be rendered or the experience and qualifications of those who submitted the proposals. They would be impressed primarily by a low fee.

In purchasing materials or contracting for construction work, a very precise, complete and definite specification to cover the quality, quantity and character of the materials or construction to be purchased is included in the basis of bidding and by means of careful inspection and testing, full compliance with the specifications can be assured. Thus, a *definite basis* for comparing bids is established. This is not possible, however, in the case of engineering services, the thoroughness, quality and extent of which depend to a great extent on intangible personal factors. Thus *no basis* for comparing bids can be established.

All of the public agencies for whom I have had the privilege of doing work over the past thirty years have laws requiring that they advertise for bids and award the contract to the lowest responsible bidder when purchasing materials or contracting for construction, but apparently none of them, with rare exceptions have interpreted this requirement as being applicable in securing the services of engineers.

The Committee on Private Engineering Practice, American Society of Civil Engineers, through continuing research over the last 20 years or more, has produced a schedule of reasonable fees that will fully compensate for *thoroughly adequate* engineering services to cover all the various circumstances of employment of engineers and at the same time be fair to clients. It is to the best interest of all concerned that members of the profession be encouraged to adhere rather closely to these provisions so as to make certain that every project undertaken shall be assured of the most thorough analysis in its performance.

I feel that the responsibility for ascertaining the qualifications of an engineer should rest more with the employing agency than on the engineer in evaluating and expressing his qualifications.

Engineers generally over a long period of time have been engaged in a continuing effort toward maintaining professional status with adequate pay for excellence of services and I should regret very much to see any move undertaken that would handicap these efforts.

A spread of "from less than 3% to over 7% of construction cost" for a bascule bridge in fifteen proposals is a fair indication of the validity of the foregoing.

WILSON T. BALLARD, *President,*
The Wilson T. Ballard Company,
Baltimore, Md.

Your solution completely false

SIR: The editorial advocating the practise of public bidding for engineering engagements strikes at the very foundation of the whole professional movement in engineering. We can well appreciate the position of Mr. McMillan of South Carolina in observing the laws of his state, but your conclusion that the only solution seems to be a modification of the code of ethics is completely false because the more obvious solution is a modification in the laws of the states that force this practice.

The test of any rule is whether or not it will apply successfully to all cases. If all engineering engagements were awarded on a bid basis, it necessarily follows that engineering firms would be forced to reduce their fees in order to obtain work. Having obtained an engagement on this basis it also follows that they would have to cut costs in order to show a profit and remain in business. This can be done by lowering salaries of engineers, designers and draftsmen or reducing the time spent in the preparation of studies, reports and designs.

Any of these alternatives will result in lower standards of engineering. The tendency would be retrogressive and the standards would become progressively worse. There would be no check upon the trend as there is in the construction industry, where contractors are supervised by engineers at all times to enforce adherence to the plans and specifications. The brunt of this chain reaction eventually would be borne by the public in the form of less adequate planning, slipshod design and unsafe structures.

You suggest that competitive proposals for engineering engagements be received, opened and read on a given day, and that each proposal be accompanied by an outline of the engineer's qualifications, a detailed statement of the services that he intends to render and the amount or percentage of his fee.

This is a compromise without any solution. In the first place, each firm would be bidding on different services, since it is inconceivable that each bidder would accidentally hit upon the identical scope of work in interpreting the client's needs or desires. Therefore, the bids would offer no fair comparison for services performed. Secondly, if the bids were on the same basis, the selection automatically would become dependent on price. If "qualifications are made paramount," then the price becomes not simply secondary but irrelevant to the selection.

The only procedure for selection of professional services which can protect the client, the engineer and the public interest is as follows:

1. The client outlines the services desired in as much detail as he can;
2. Engineering firms submit their qualifications for the engagement, including the final factors of past performance in similar work, available staff of experts and readiness to serve as measured by the present workload of the organization;
3. The client selects the best qualified firm on the basis of these factors and negotiates a fee after further discussion of a more detailed outline of the services required and the timing of the work; and
5. If a satisfactory fee cannot be agreed upon, the client goes to the Number 2 firm—etc.

This procedure has been advocated by technical and professional societies for many years and finally has been accepted by many governmental agencies. Let us not undo all these efforts now.

There is no disputing your contention that when an engineer of Mr. McMillan's standing is legally forced into the position of inviting noncompliance with a code of ethics, "something is basically wrong; and it is undeniable that this situation is a serious threat to the high professional standards that have been built up over many years." However you are forgetting how they have been built up. It has not been by encouraging competitive bidding but rather by emphasizing the place of engineering as a profession. Webster defines a profession as "a calling in which one professes to have acquired some special knowledge used by way either of instructing, guiding or supervising others, or of serving them in some art." It should be apparent that advice or service of this kind cannot be bartered by price alone.

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E. H. Harlow, Vice President
New York, N. Y.

According to the architect, Mr. John Hans Graham, a reinforced concrete frame was selected for this new low-cost apartment building for three reasons: *Economy*—This flatplate type of construction proved less expensive than any other kind of structure. *Speed of Erection*—A complete slab was poured on this project every week. *Flexibility*—This construction allows complete freedom in locating intermediate partitions, pipes, ducts, etc.

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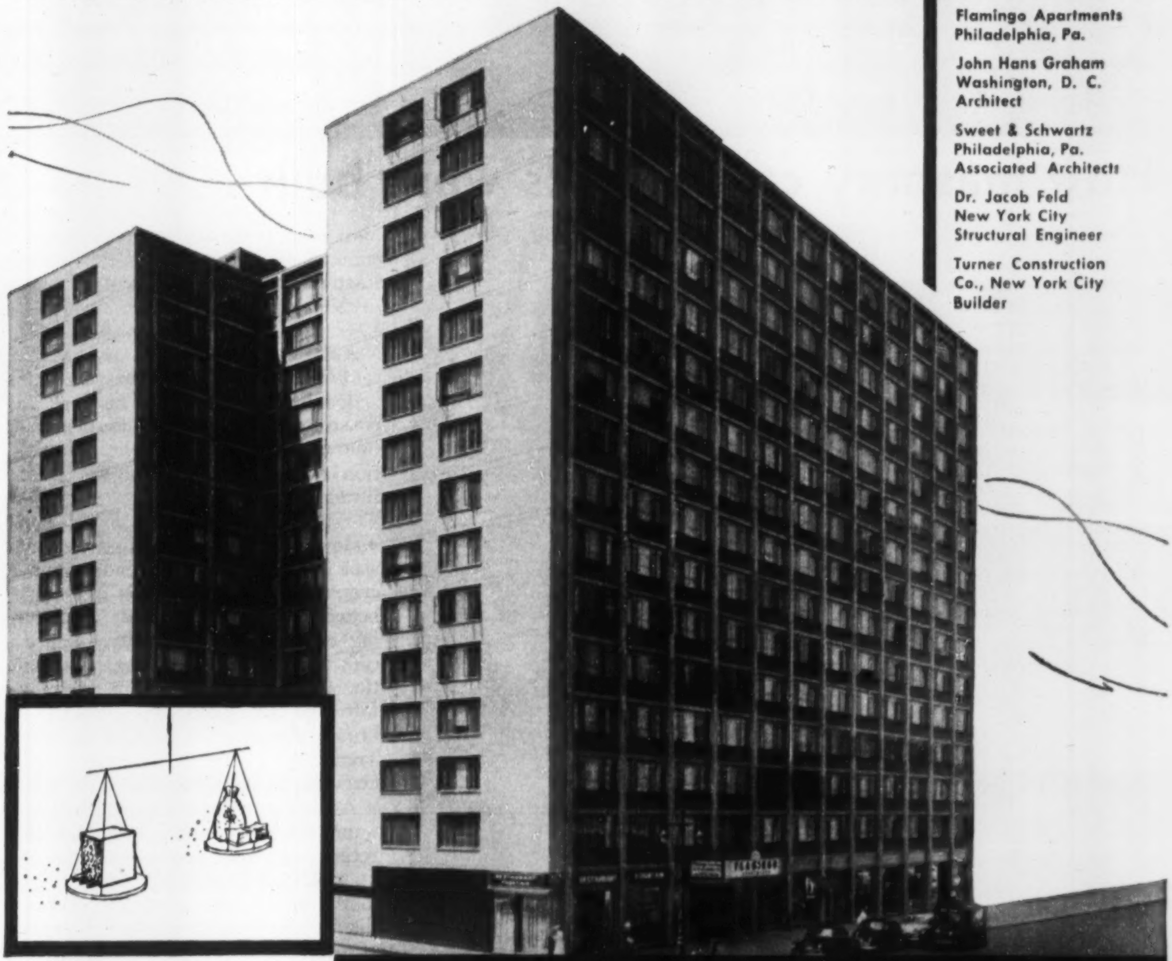
Sweet & Schwartz
Philadelphia, Pa.
Associated Architects

Dr. Jacob Feld
New York City
Structural Engineer

Turner Construction
Co., New York City
Builder



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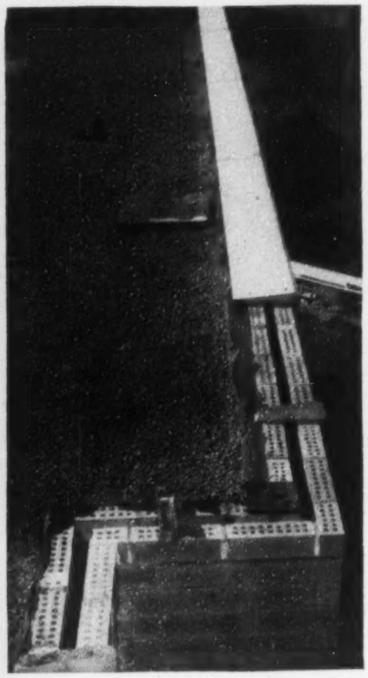


How masonry cavity walls were built . . .

. . . for 19 story VA hospital

The Veterans Administration general medical hospital now nearing completion in New York City will be the tallest building in the world to be enclosed with masonry cavity walls. Built at a cost of $20 million, the structure is 19 stories high.

Though used extensively abroad, cavity walls have not been employed to a great extent in the U. S. Since the end of World War II, however, their popularity has increased: They have been used with economy in several tall apartment houses, including 12-story buildings in low-rent projects in New York City (ENR April 17, 1947, vol. p. 584).

A cavity wall consists of two vertical planes, or wythes, of masonry separated by an air space. This type of construction minimizes rain penetration and furnishes better heat insulation than a solid wall of the same thickness.

• How to keep cavity open—If a cavity wall is to function as intended, however, there must be no tie or bridge between the wythes capable of carrying water across the cavity. Hence, care must be taken during construction to prevent mortar from dropping into the air space and forming a bridge. For the VA hospital in New York City, a novel device was used to keep the cavity open.

As wall construction progressed upward, the two wythes were tied together with ¼-in. bronze anchors, 24 in. on centers horizontally and at every fourth brick course vertically. When the anchors were set in place, a length of metal-edged 2x2 lumber was placed on top of them, to catch the mortar drippings. This trough was pulled up and emptied after every fourth course, just before a new row of anchors was inserted.

• Modular masonry—The outer wythe

of the wall is modular, preformed brick, mostly 3½ x 3½ x 11½ in., with ½-in. mortar joints. The inner wythe is cinder block. Between the two wythes is a 2-in. wide air space.

The masonry exterior walls are carried by the structural steel frame of the building. The inner wythe rests directly on the lightweight-concrete floor, while the outer is supported on 5x5x7/16-in. angles attached to spandrel beams. Such supports are spaced 11 ft 8 in. apart vertically.

To permit expansion and contraction, ¼-in. to ⅜-in. wide joints were formed in the shelf angles, including mitered joints at corners, and protected with flashing.

• Rain can't get through—Water that penetrates to the cavity will drain off through weepholes. Spaced 3 ft on centers horizontally, these drains are formed in the outer wythe just above shelf angles and grade-level supports. To form the weepholes, bricklayers laid greased sash cord in mortar joints, then pulled it out after the mortar reached its initial set.

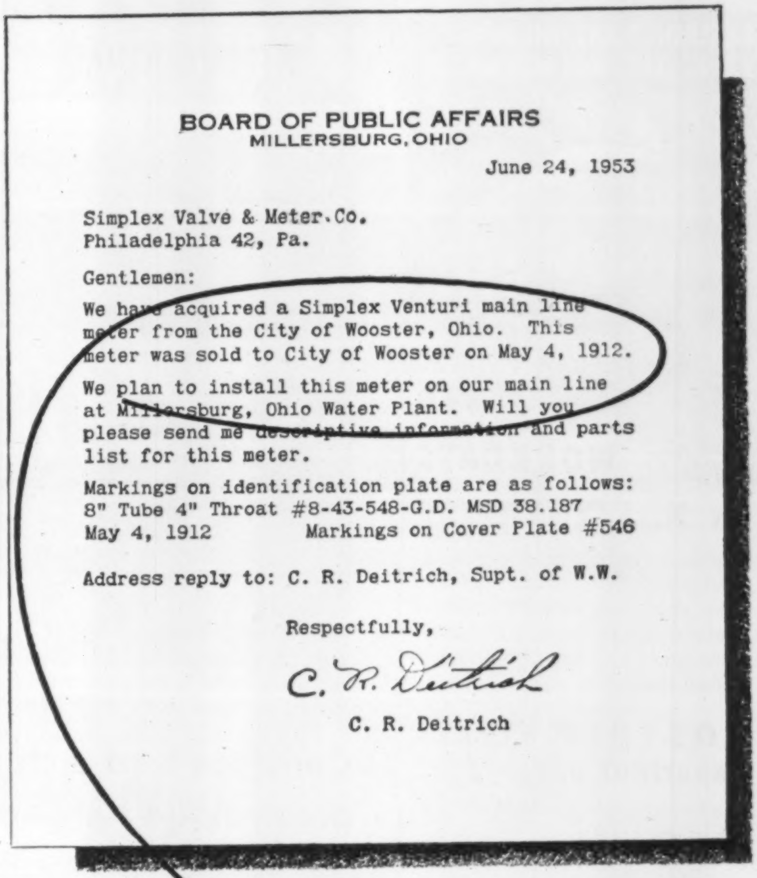
At grade level, the cavity is flashed continuously to drain the water toward the weepholes and prevent penetration into the building or its foundations.

Some of the walls have been in place about one year. Close inspection by the resident engineer has revealed no evidence of water penetration to the interior. Where excess mortar washed through weepholes however, it soiled the walls initially, but once the stains were removed, they did not re-appear.

• Big building—The new hospital is one of the largest in the VA program. Occupying a site on the east side of Manhattan, bounded by First Avenue, Avenue A, East 23rd and East 25th streets, the 19-story building will contain 1,252 beds. Two major wings composing it are 265 ft and 423 ft long, respectively, intersecting to form a T-shape in plan. They are founded on steel H-piles up to 120 ft long.

Also included in the project are a separate building for quartering nurses and attendants, apartments for administrative staff, and garages.

Construction is under the direction of the Army Corps of Engineers, New York District, of which Col. Alfred H. Davidson, Jr., is district engineer. Cauldwell-Wingate Co. is the general contractor, with Eugene Nedbor, project manager, and Steve Koerner, job superintendent. Alfred Hopkins & Associates was the architect; Severud-Elstad-Krueger, the consulting structural engineer; and Guy B. Panero, the consulting mechanical engineer—all of New York City.



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June 24, 1953

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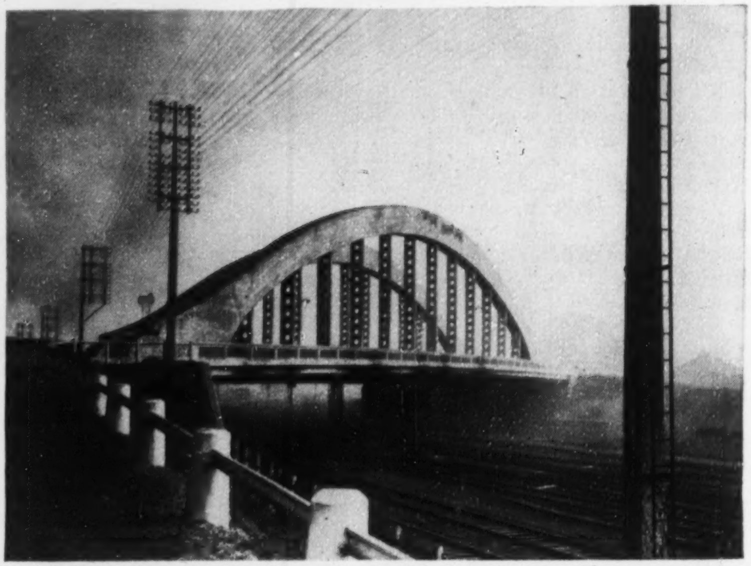

ARCH BRIDGE, in Bourget, France, is a combination of prestressed concrete tension members and reinforced concrete arch ribs.

Concrete tied arch spans 236 ft with prestressed hangers and tie girders

A tied arch highway bridge over railway tracks in Bourget, France, consists entirely of concrete members. Prestressing is used in the tension members (tie girders and hangers) and reinforcing in the arch ribs. The massive concrete structure was constructed 3 ft above its final position and lowered into place with jacks after forms were stripped. If the bridge had been built at its final elevation, the formwork for the road deck and the tie girders would not have allowed the minimum clearance required for the passage of rail traffic on the tracks beneath.

• Hollow ribs—Spanning 236 ft between supports, the parabolic reinforced concrete arch ribs have a hollow box section with a constant outside width of 4 ft 7 in. Depth of the ribs varies from 7 ft 10½ in. at the crown to a narrower point of 6 ft 7 in. near the abutments. The ribs then flare out deeply over the supports. Maximum height beneath the arch rib is 38 ft 9 in.

The tie girders have a constant width of 3 ft 5 in. and a variable depth so that the average section of the girder is approximately square. There are 48 prestressing cables—24 with twelve ¼-in. wires and 24 with ten ¼-in. wires—in each girder. Cables for each girder are arranged in four groups of 12 each and placed in precast concrete sheaths. In each of the precast sheaths there are two layers of six cables each. A steel sliding plate separates the two layers of cable. The sheaths were placed symmetrically in the girder form—two above the center line and two below—and after the girder was concreted the cables were post-tensioned and pressure grouted. The Freysinnet system was used throughout.

The hangers supporting the road deck are shaped roughly like an I-beam with a depth (measured transversely to the roadway) of 3 ft 3 in. The thick flanges contain the prestressing cables, each flange having three 12-wire cables, with each wire having a ¼ in. dia. The webs of the hangers are perforated with large circular holes. In analysis of the hangers, the overall dimensions showed that buckling under post-tensioning of cables was not to be feared. The cables for the hangers were given a bituminous coating and wrapped mechanically with a steel strap sheathing prior to being placed in the hanger form.

• Pitch and aluminum tubes—The hangers were post-tensioned from the top. Warm weather plus heat of friction in cables raised the possibility of the bituminous coating running down the cables and loosening the anchorage at the bottom cone. As a preventive measure, the ends of the cable, just above the bottom cone, were dipped in pitch to form a cap through which an aluminum tube was inserted to draw off the flowing excess bituminous coating. The tube drew off the liquid and discharged it outside and clear of the cone to avoid fouling the anchorage.

Prestressing also was used in the ends of the arch ribs at a point where the tie girders join the rib and the whole assemblage rests on a concrete rockers. These prestressing cables were placed roughly at right angles to the slope of the arch rib in order to fasten the tie girders securely to the rib.

When forms on the finished bridge had been stripped, eight jacks—four at each abutment—lowered the bridge in 7-in. stages. The lowering operation took three days.

The bridge was built by Sainrapt & Brice, Paris, France.

International briefs . . .

• **Refinery site sought**—The International Petroleum Ltd. (a Colombian government firm) is selecting a site for construction of a proposed $40-million refinery with a capacity of 25,000 bbls daily. So far, the only decision reached is that the new plant will be located in the northern part of the country on the Caribbean Coast.

• **Burma oil venture**—After nearly two years of negotiations, Burma has signed an agreement with Burma Oil Co., Indo-Burma Co. and British Burma Petroleum Co. to set up a joint firm for the production and refining of Burmese oil. Under the agreement, the government of Burma gradually will absorb all shares in the operation.

• **Map-making magic**—A new Swedish surveying instrument (called a geodimeter) simplifies map-making in inaccessible areas. With this instrument, a field operation that formerly took a 40-50 man survey squad several months to complete now can be done by a team of five in a few hours. Using an electronic device, the geodimeter measures the time taken for light to travel to a distant point (where a mirror has been erected to reflect the ray) and back. It reportedly is capable of measuring a distance of 16-mi within a 3-in accuracy. The instrument is manufactured by the Aga Co. of Sweden.

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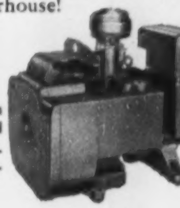

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NOBODY WAS HAPPY at New York's old Airlines Terminal, where travelers and buses fought local traffic for place to stand or move. Piled luggage and jammed humanity formed an obstacle course that all air passengers were forced to run.

Airlines terminal crush gives way . . .

Observation of the first weeks of operation at the new East Side Airlines Terminal, in New York City, supplies ample justification for the construction of the $7.5-million structure.

Until recently, the air traveler arriving in the center of the largest city in the United States was dumped into what many believe was the worst terminal condition in the country. A long, often creeping bus trip through jammed city streets, too, preceded the confusion the traveler found in the city terminal.

The original air-lines terminal, opened by five airlines in 1941 on Pershing Square opposite the Grand Central terminal in the heart of midtown Manhattan, was equipped to handle ticket-selling and transportation activities on the scale of the comparatively limited air travel of the time.

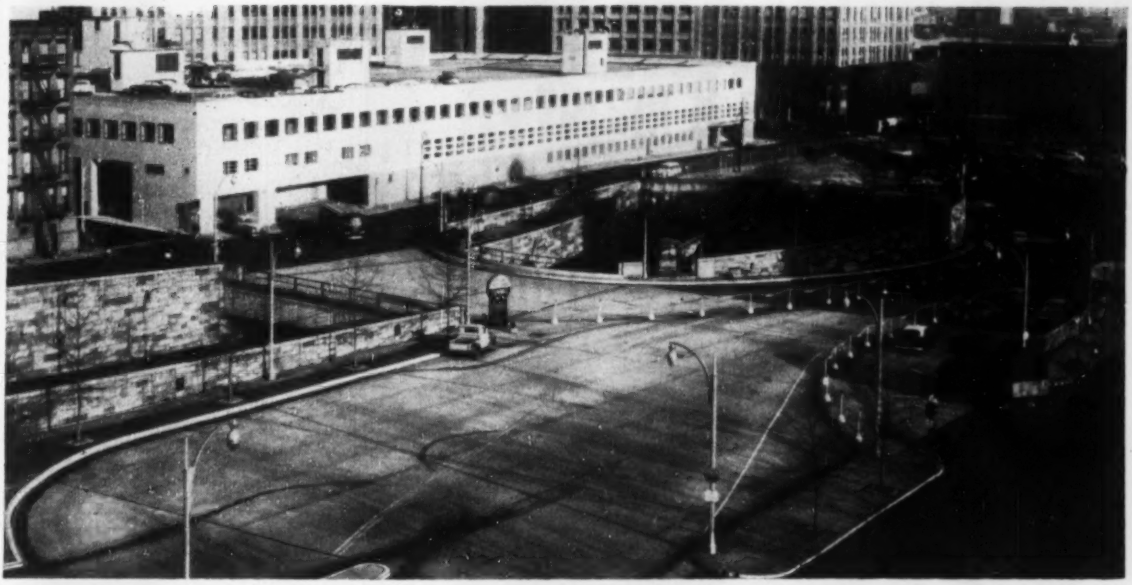
But when bus trips multiplied to 550 per day, and activities mushroomed, expansion overflowed into the busy streets. Frayed tempers were the rule rather than the exception; piled luggage, hooting buses and snarling humanity bewildered the newcomer and sent the outbound passenger fuming to his plane.

• Order out of chaos—When the Triborough Bridge and Tunnel Authority decided on the construction of a new terminal it drew—from sad experience—on a long list of "don'ts in the design of air terminals", and with architect John B. Peterkin working under the direction of Authority Chairman Robert Moses, here is what was accomplished.

• The site—With an eye toward ending the necessity to buck mid-town traffic, the building was located on a block-square plot adjacent to the entrance of the Queens-Midtown Tunnel, at East 37th Street with direct access to expressways leading to both LaGuardia and International airports on Long Island.

One end of the site was nine feet

(*Continued on page 46*)



PEACE REIGNS at new terminal, where uninterrupted flow of separated taxi, bus and auto movement within the building, and its location at the threshold of an expressway network give the neat white building a look of wide open accessibility.

UNDER COVER taxi bay inside the building keeps traffic off the street.

THE MAIN ROTUNDA, as viewed from the passengers' lounge on the mezzanine, contains facilities for ticket activities, shopping, eating, browsing and relaxation.

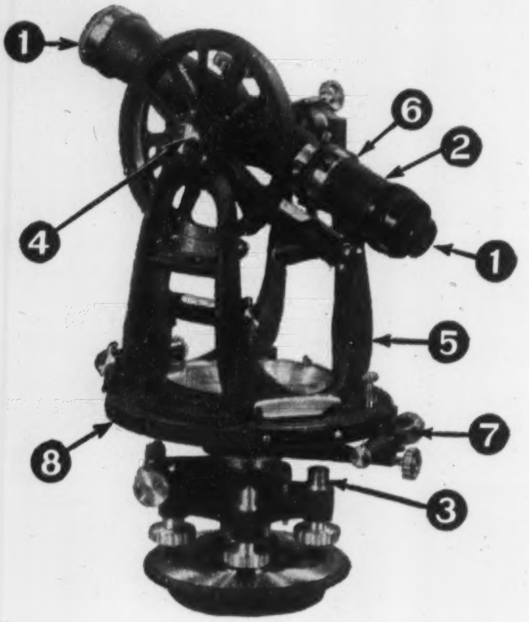
. . . as new facility goes to work

CENTER OF THE WORLD, ten domestic and ten foreign airlines maintain counters to speed the traveler on his way.

IN AND OUT IN TEN MINUTES is the schedule for the buses as 15 of them are loaded or unloaded simultaneously.

Ask the man behind the gun...

How these 8 major design advances make White the top engineers' transit



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higher than the other, and taking advantage of that condition, Peterkin designed on-grade access to two levels of the building.

• **The structure**—The first level, reinforced concrete and steel frame, houses a bus garage with maintenance and stand-by facilities, a taxi bay under cover and separate auto- and bus-ramps to upper levels, all designed to keep vehicles off the street.

The second level contains the large rotunda with ticket counters, restaurant, cocktail lounge and shops, and offers direct access at one end to the 15-vehicle bus platform.

The third, or mezzanine level contains additional ticket counters and lounges, and is designed for expansion to meet future demands.

The roof is provided with parking facilities for 275 cars that reach the area by ramps built inside the structure. Future plans call for a heliport to be erected above this parking deck, and in the structural design of the building the architects took the additional loading into consideration.

All framing above the first story is of welded steel, and the decking is precast reinforced concrete.

• **The result**—Orderly movement of passengers and baggage through the terminal gives an impression of leisure, since time elapsing from ticket purchase to plane embarkation at the airport has been cut from 45 to less than 30 minutes.

One advantage the old terminal had over the new was its proximity to main New York City rapid transit lines.

Passenger use of the terminal undoubtedly will increase but with the capacities of the 48-in. escalators for vertical movement throughout the building set at 5,000 passengers per hour, and the other facilities geared to match, authority spokesmen believe that they are not only abreast of the tide, but away ahead of it.

Traces housing progress

Ground-breaking ceremonies for the first three-building section of the LaGuardia Houses development on the lower eastside of Manhattan in New York City last week gave Herman D. Hillman, Acting Director of the New York Field Office, an opportunity to trace some of the progress of the city's long standing joint venture with the federal government in low-rent housing.

Hillman pointed out that the first products of the affiliation were the two projects built under PWA which soon will be conveyed to the New York City Housing Authority.

Under the U. S. Housing Act of 1937, nine projects emerged to take care of 14,165 low-income families.

The nine 16-story buildings of the LaGuardia Houses (six of which will remain on the proposed list pending congressional assurance that the program will be continued) comprise the 18th project under the 1949 act.

Fulfilling the balance of the New York City Housing Authority's federally-aided program under the '49 Housing Act, Hillman said, would involve construction of 22,000 additional apartments.

Municipal briefs . . .

- **A good return**—The Virginia Mosquito Control Association has approved a proposal to spend $200,000 for the drainage of 10,000 acres of salt marshland on the lower Virginia Peninsula. It is claimed that the expenditure will save from $50,000 to $75,000 in annual outlay for the control of the salt water mosquito.

- **No complaint warranted**—One essential commodity that has not gone the way of the nickel beer and the five-cent cigar is that good ol' glass of Los Angeles water. But after April 1 the first rate raise in more than 15 years will go into effect. The 17% over-all increase (average of about 67 cents cost per month to the consumer) comes principally as the result of a proposed five-year expansion of the city's water system that will cost an estimated $83 million.

- **Lab site set**—Pittsburgh Plate Glass Co. has purchased a 45-acre tract in Harmar Township (near Pitsburgh) as the site for its projected glass research laboratory. The building—now in the planning stage—will house basic and applied research activities. The development and product control section of the firm's research program will continue at the existing Creighton, Pa., laboratory.

- **Cleveland engineering center**—Cleveland will have a new engineering center—if funds can be raised. The proposed structure would be used for activities of the 2,000-member Cleveland Engineering Society, the largest engineering group in northern Ohio. Plans call for some 36,000 sq ft of floor space, an auditorium seating 900 persons—plus administrative offices, meeting, dining, and conference rooms, and classrooms. Architect: Garfield, Harris, Robinson & Schafer.

WELLMAN "Williams"
MULTIPLE ROPE BUCKETS

Designed for digging bigger payloads

The *double* main hinge design of these WELLMAN "Williams" buckets gives you many advantages including: lower head room when boom or crane operations are cramped; stronger, more compact construction; and a really "long reach".

These tough, top-quality buckets are fast operating and give the operator perfect control at all times.

If it's a WELLMAN—it's built to dig and last while digging.

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CLEVELAND 4, OHIO

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7032 Central Avenue, Cleveland 4, Ohio

Please send me bulletin on:
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☐ Dragline Buckets ☐ Log Grabs

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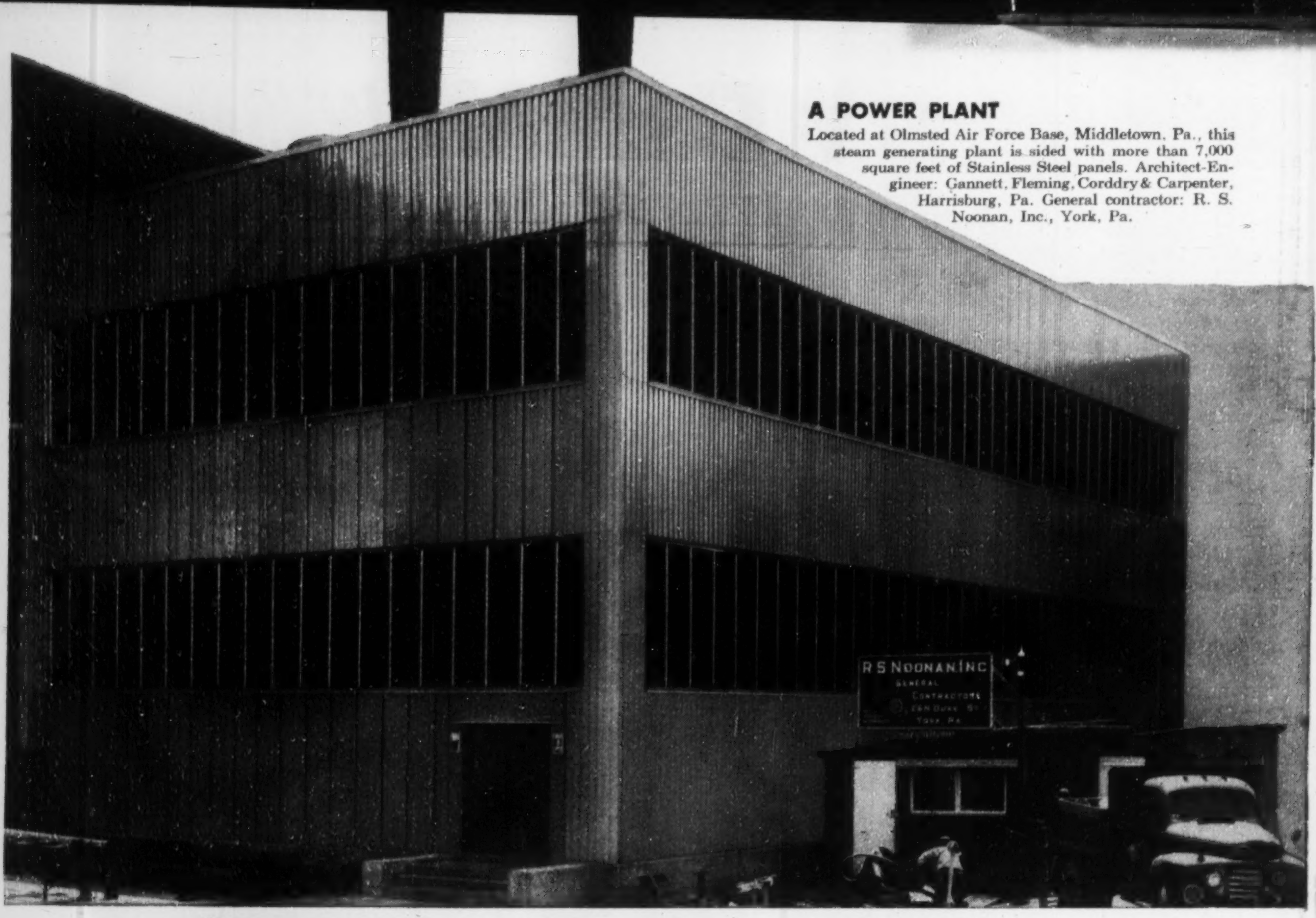
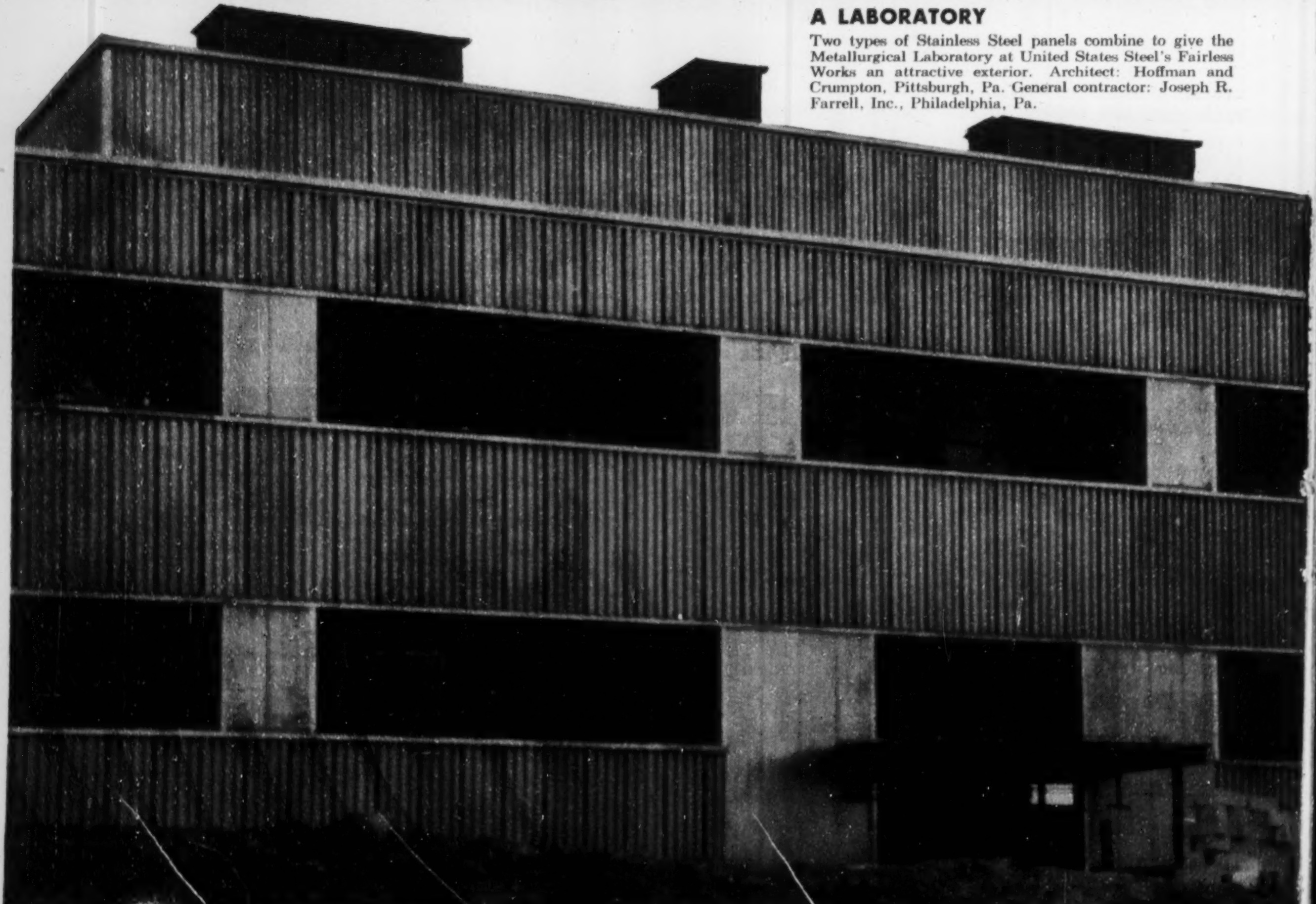
City________________ State________________
Position________________ Company________________



A POWER PLANT

Located at Olmsted Air Force Base, Middletown, Pa., this steam generating plant is sided with more than 7,000 square feet of Stainless Steel panels. Architect-Engineer: Gannett, Fleming, Corddry & Carpenter, Harrisburg, Pa. General contractor: R. S. Noonan, Inc., York, Pa.



A LABORATORY

Two types of Stainless Steel panels combine to give the Metallurgical Laboratory at United States Steel's Fairless Works an attractive exterior. Architect: Hoffman and Crumpton, Pittsburgh, Pa. General contractor: Joseph R. Farrell, Inc., Philadelphia, Pa.

THESE THREE BUILDINGS WENT UP FASTER, WILL STAY ATTRACTIVE LONGER WITH

Stainless Steel panel construction

● Although Stainless Steel was first used as a material of construction more than 25 years ago, its use in the form of insulated panels is a comparatively recent development. But architects and engineers have accepted it so rapidly that a wide variety of buildings using Stainless Steel panel construction are completed and occupied today.

Here are three structures . . . differing widely in size, in design and in purpose . . . that demonstrate the advantages of Stainless Steel panel construction.

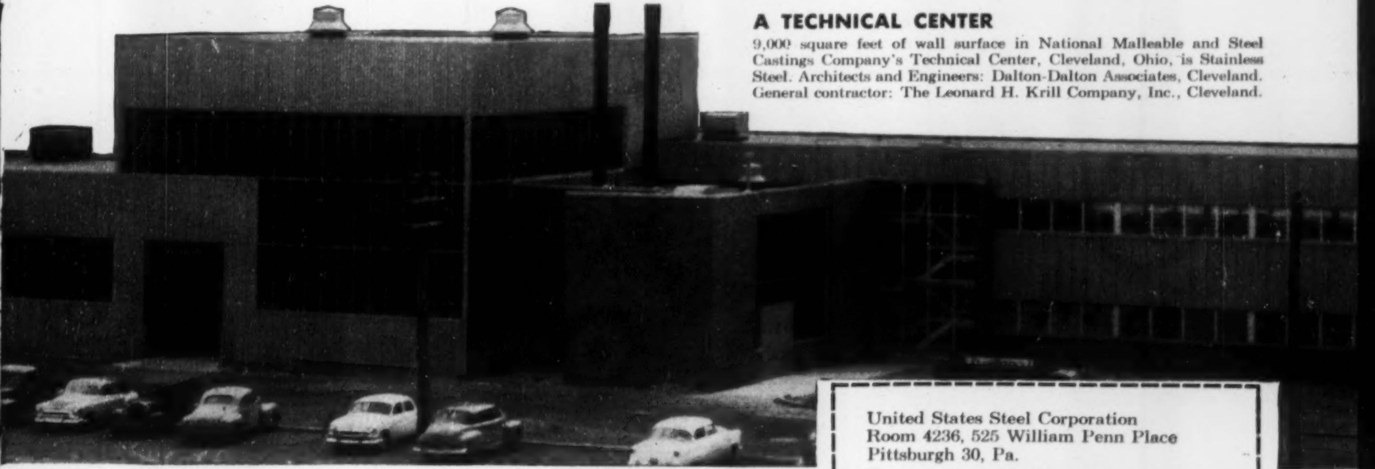
From the standpoint of design, Stainless Steel panel construction offers simple, clean lines with a material that never loses its attractive appearance. Stainless Steel panels can be combined with other materials with pleasing results. And their method of erection—they are hung on the structural framework—allows fullest possible utilization of interior floor space.

Erection is quick and cost-saving. It requires a minimum crew and goes forward in any type of weather.

Once the building is occupied, Stainless Steel panel construction continues to pay off. Maintenance is at a minimum . . . no painting is required. The low thermal conductivity of these insulated panels holds down heating and cooling costs. And the life of the building is long.

● ● ●

If you would like more information on panel construction with U·S·S Stainless Steel, mail the coupon below.



A TECHNICAL CENTER

9,000 square feet of wall surface in National Malleable and Steel Castings Company's Technical Center, Cleveland, Ohio, is Stainless Steel. Architects and Engineers: Dalton-Dalton Associates, Cleveland. General contractor: The Leonard H. Krill Company, Inc., Cleveland.

United States Steel Corporation
Room 4236, 525 William Penn Place
Pittsburgh 30, Pa.

☐ Please send me literature on Stainless Steel panel construction.

☐ Please arrange to have fabricators of Stainless Steel wall panels send me literature on their particular type of construction.

Name.......................... Title..........

Address..

City.......................... State..........

United States Steel produces only the Stainless Steel from which panels of this type are made; the panels themselves are fabricated by our customers.
Stainless Steel panels on these buildings fabricated and erected by the H. H. Robertson Co., Pittsburgh, Pa.

UNITED STATES STEEL CORPORATION, PITTSBURGH · AMERICAN STEEL & WIRE DIVISION, CLEVELAND
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO · NATIONAL TUBE DIVISION, PITTSBURGH
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA.
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OBITUARIES

John A. McNiven, 66, chief engineer for the Port of New Orleans, La., for the last 24 years, died Jan. 18. He joined the port commission in 1917 and became chief engineer in 1930. Before his career in New Orleans, he did engineering work in Canada and for firms in Detroit, Chicago, and New York. His work in the construction of grain elevators was extensive. Under his guidance the $30-million New Orleans port expansion program has made great strides.

David M. Myers, 75, consulting engineer with Seelye, Stevenson, Value & Knecht, New York City, died at Larchmont, N. Y., Jan. 20. Formerly Mr. Myers had been a consulting engineer for the Bureau of Yards and Docks, U. S. Navy, and for the last eight years he was a consulting engineer for the N. Y. City Board of Water Supply.

Burton Fremont Dinsmore, 64, Pasadena, Calif., industrial builder, died Jan. 11. He built many factories, specializing in milling and feedmill plants. He was president of the Utah state branch of the Associated General Contractors in 1927 and national director in 1928.

Alden Wells, 67, chief engineer and deputy manager of the public works bureau of the Hartford, Conn., Metropolitan District, died at Hartford, Jan. 14. He entered city employ in 1909 and became chief engineer in 1948.

Harry F. Sawtelle, 78, retired civil engineer who had served many years in the Boston Transit Department in connection with subway and bridge designing, died at Boston Jan. 23.

Sidney H. Francis, 76, who supervised the erection of more than $60-million worth of buildings at Yale University in the last 31 years, died at New Haven, Conn., Jan. 27. A graduate of Worcester Polytechnic Institute, he went to Yale in 1922 and became construction superintendent. Since 1936 he also had supervised the sale and development of the 1,500-acre Yale Farms in Greenwich, Conn., and North Castle, N. Y., a tract given to the university by John Sterling, class of 1864.

Frank J. O'Connor, 70, former civil engineer for the New York State Department of Public Works, died Jan. 21 in Rochester, N. Y. He retired from the highway department eight years ago.

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
March Materials, and Labor Prices will appear in March 4, 1954 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash, dis. not deducted			SAND AND GRAVEL Per ton, carload lots			CRUSHED STONE Per ton, carload lots		CRUSHED SLAG Per ton, carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.; truckload del.; per block		CONCRETE Ready Mixed 1:2:4, over. 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$3.87	$3.56	$3.40	$2.075	$2.075	$1.83	$2.20	$2.20	$1.99	$1.99	$0.21	$0.21	$12.06
Baltimore	3.90	3.60	3.53	2.60‡a	2.60‡a	2.00‡a	2.75‡a	2.80‡a	2.65‡a	2.60‡a	.17	.17a	11.45
Birmingham	3.26	2.60e	....	2.53n	2.53n	2.23n	2.64	2.64	1.25	1.45	.165	.165	11.00
Boston	4.16	3.84	3.96	2.50a	2.50a	2.50a	1.50a	1.60a	.....	.....	.215	.245a	12.00h
Chicago	3.48	3.17	....	3.25‡b	3.25‡b	3.65‡b	3.25‡b	3.25‡b	2.25‡	2.25‡	.23	.23b	11.70/11.94
Cincinnati	3.76	3.55	3.55	2.19‡c	2.24‡c	2.24‡c	2.54‡c	2.54‡c	.....	.....	.21	.225a	10.95
Cleveland	N. A. in C. L.	3.19e	....	2.05ef	1.85f	1.65	4.10a	4.10a	3.35‡	3.15‡	......	.22	14.40d
Dallas	3.15	2.85	2.90	2.18	2.28	1.84	2.22	2.38	.....	.....	.11e	.2675	9.40
Denver	4.04	3.74	4.04	1.85	2.00	1.20	.....	.....	.....	.....	.23	.255a	10.50
Detroit	3.77	3.50	3.57	4.50‡b	4.50‡b	4.00‡b	4.25‡	4.25‡	4.25‡	4.25‡	.21	.22a	12.00f
Kansas City	3.52	3.22	3.30	1.85‡	1.85‡	1.50‡a	2.00‡a	2.00‡a	.....	.....	.20a	.215c	12.25b
Los Angeles	4.52a	4.00a	5.00	2.16a	2.36a	2.11a	2.11a	2.21a	.....	.....	.135fm	.237m	11.78lh
Minneapolis	3.95d	3.64d	3.56	2.55‡ag	2.55‡ag	1.50‡ag	2.75‡ag	2.75‡ag	.....	.....	.19ik	......	12.75^{fi}
Montreal	3.16ac	2.96ac	....	3.00^{e}	3.00^{e}	2.25	1.65ij	1.90ij	.....	.....	.20	.20a	10.55^{eh}
New Orleans	3.35	3.02	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	......	12.90
New York	4.01	3.70	3.53	2.75bk	2.75bk	1.80bk	2.70bl	2.70bl	.....	.....	......	......	13.55an
Philadelphia	3.58/3.97‡	3.27/3.64‡	3.58/3.63‡	2.75‡^{o}p	2.75‡^{o}p	2.15‡^{op}	2.30‡	2.40‡	2.00	1.90	.22/.25	......	12.50^{do}
Pittsburgh	3.47	3.19	3.47	2.25‡	2.25‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.22d	.22	13.00
St. Louis	3.42/3.63b	3.09/3.35b	3.25/3.42	2.90am	2.90am	2.30/2.90am	1.70j	1.70j	1.50	1.50	.22	.28ci	11.40
San Francisco	3.56	3.16	....	1.92	1.92	2.02	2.02	2.02	.....	.....	......	.27cl	11.25c
Seattle	4.65a	3.35a	5.80h	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	.....	.....	.25^{i}	.3325^{i}	11.40^{j}

‡ Delivered. * Prices incl. dealers discount except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers discount not incl. *d* Dealers sell only LCL. *e* Truckload lots, destination price. *h* LCL.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ½". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars. *o* 1-3 mi zone. *p* Add 10¢ for ea. add'l 3-mi zone.

CONCRETE BLOCK: *a* Cinder *b* Waylite. *c* Haydite. *d* Celocrete. *e* 5¼ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash. *k* 8 x 8 x 18. .21. *l* F.o.b. plant San Rafael *m* F.o.b. yard
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. c 10-100 cu. brackets. *d* 1-3 mi. zone. *e* 2,000 lb comp. *f* 2500 lb. comp. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause. o Add 15¢ for ea. add'l 3-mi zone.

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10¢ per bbl. for payment within 15 days of date of invoice. Subject discount 10¢ per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable.

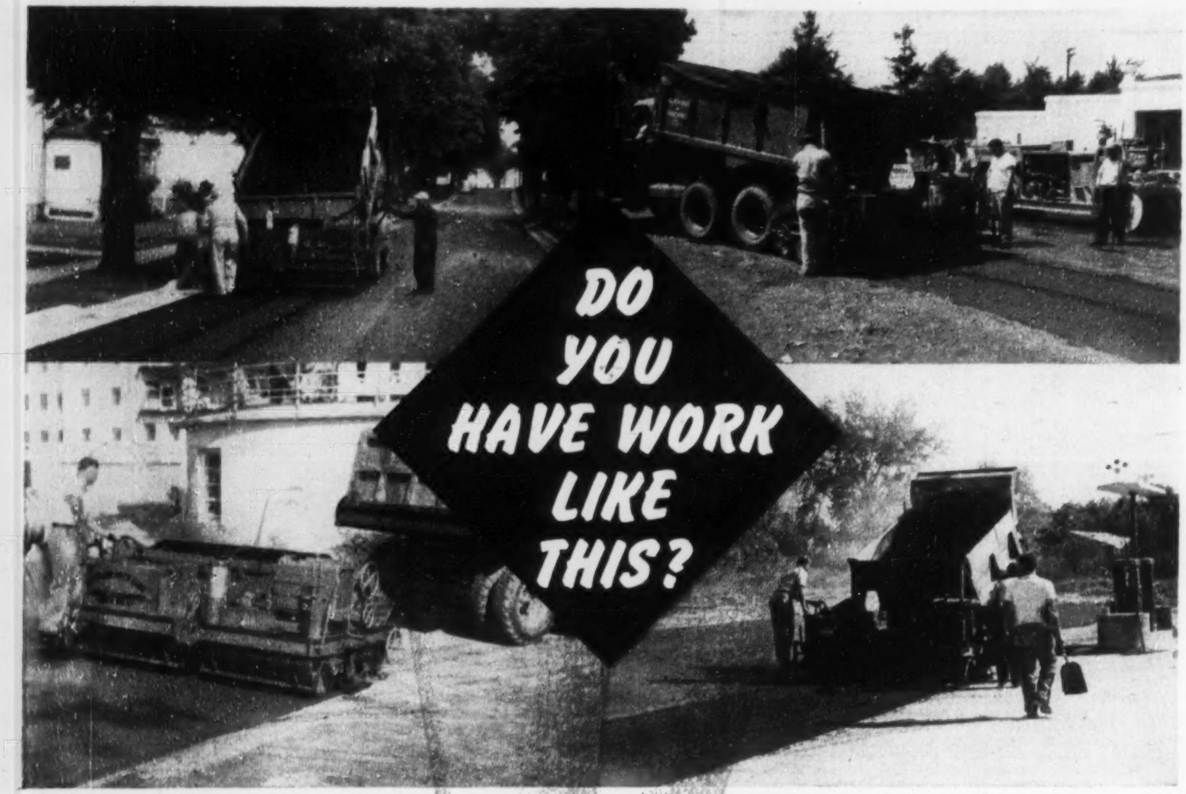
	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.75†	Buffington, Ind	$2.70†	Steelton, Minn	$2.80†	Muskegon, Mich	$2.85†	Toledo, O	$2.80†
Clinchfield, Ga	2.75†	Independence, Kan	2.65†	Leeds, Ala	2.60†	Saginaw, Mich	2.75†	Milwaukee, Wis	2.90†
Kingsport Tenn	2.75†	Hannibal, Mo	2.70†	Duluth, Minn	2.80†	Wyandotte, Mich	2.75†	Green Bay, Wis	2.90†
West Des Moines, Iowa	2.80†	Northampton, Pa	2.75†	Hudson, N. Y	2.75†	Buffalo, N. Y	2.85†	Ironton, O	2.75†
Nazareth, Pa	2.75†	Universal, Pa	2.80†	Alpena, Mich	2.65†	Oswego, N. Y	3.00†	Montreal City	2.66
Bath, Pa	2.75†	Waco, Tex. (+ 10¢ tax)	2.60†	Detroit, Mich	2.75†	Cleveland, O	2.80†	W. Winfield, Pa	2.80†

† *Prices to hold for first quarter of* 1954.

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80-300 penetration		CUTBACK ASPHALT Per ton		ROAD OIL Per gal.	ASPHALT EMULSION (Quick-break) Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	$82.00	$41.00	$2.25	$26.00	$33.25	$0.215	$0.455	$0.095w	$0.185w	$0.105	$0.115	$0.225
Baltimore	150.00‡	75.00‡	.....	22.00i	.....	.0809i	0.15i	.09iw	.17iw	.09i	.09i	0.12i
Birmingham	.....	45.50i	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Boston	.....	.....	.....	22.00a	23.00a	22.00av	22.00av	.....	.....	.09a	.105a	.22a
Chicago	155.00‡	90.00‡b	3.60/3.65‡j	21.05b	31.05b	20.05bv	30.05bv	.099bw	.1890bw	.0775b	.....	.....
Cincinnati	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cleveland	200.00	65.00d	5.03g	23.00^{A}	.....	23.00^{A}	.....	.1025^{A}w	.....	.....	.11^{A}	.18^{A}
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	27.09	47.87	.098	.1014	.2128
Denver	.....	50.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Detroit	.....	98.00	.....	27.21	.....	27.21v	.....	.1202w	.....	.0925	.....	.2811
Kansas City	e	e	e	15.00cl	.....	.06	.....	.065$^{\bullet}$w	.....	.055c	0.10	.....
Los Angeles	e	.....	e	16.00dmx	.....	16.00dvx	.....	18.00dx	.....	17.00dv	.0825j	.1725j
Minneapolis	.....	.....	2.97h	.....	.....	.....	.....	.....	.....	.....	.....	.....
Montreal	.....	e	e	27.00n	39.60n	.135n	.198n	16.50nu	20.90nu	.132n	.184ns	.225ns
New Orleans	.....	.....	.....	17.50e	....o	17.50ev	....o	.085ew	....o	.0825^{B}	.085	.....
New York	.....	.....	2.75f	25.26q^{CD}	46.59q^{D}	24.26vt^{CD}	45.58vt^{D}	.1071^{WCD}	.2021w	.....	.1072^{CD}	.1993^{D}
Philadelphia	175.00	110.00	4.06	22.00	.....	.....	.....	.095u	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	27.00	38.00	.10	.21	27.00	40.00	.095	.10	.22
St. Louis	.....	.....	.....	18.66f	.....	.1758	.....	.084/.0865w	.....	0.155	.10	.....
San Francisco	.....	55.00^{e}	.....	17.50g	33.00gp	17.50gkv	33.00gkv	20.00g	37.50g	18.75v	.085y	.....
Seattle	.....	.....	.....	17.50h	38.00h	17.25hv	.....	20.00h	.....	19.75hv	.085h	.095^{hr}

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2⅝ x 8¼ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6# treat. *g* 3" *h* 2" int., 8# treat. *i* 3 x 3⅝ x 8½. *j* 2½", 6lb. tr.
ASPHALTS: *a* Price at plant, Everett, Mass *b* F.o.b. refinery Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond Calif. *h* F.o.b. Martinez. *i* F.o.b. refinery, Baltimore. *j* F.o.b. refinery, Inglewood, Calif. *k* 50-110 penetr. *l* Less than 100 penetr. *m* 40/80 penetr. *n* Tax incl. *o* Drums not avail. Shipped in steel bbl *q* 40/85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85/200 penetr. *u* Per 100 gal. • Per ton. *w* Per gal. *x* Also tank trucks *y* F.o.b. Oakland. ^{A} F.o.b. refinery, Cleveland. ^{B} F.o.b. Norco, La ^{C} Bulk. ^{D} Prices based on transporting to Manhattan via truck.



VILLAGE AND CITY street work, parking lots, driveways, service stations, tennis courts, non-specification asphalt pavements of all kinds!—That's the place for your Adnun Jr., Model 8 Black Top Paver.

The Adnun Jr. is built to give you long life, trouble-free service in miles of work. It will spread any dry or bituminous material. Every bearing is anti-friction, transmission gears have cut teeth and run in oil. All design follows the pattern and quality of larger machines built for state road work.

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ADNUN JR

MODEL 8

BLACK TOP PAVER

BLAW-KNOX COMPANY
FOOTE CONSTRUCTION EQUIPMENT DIVISION
1922 State Street
Nunda, New York

BLAW-KNOX

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ½-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area...	$4.10	$4.10	$4.15	$8.90	....	$86.50	$104.00	Not available	$5.275	$7.05	$5.125	....
Chicago Area......	4.10	4.10	4.15	8.90	$4.925	86.50	104.00		5.275	7.05	5.125	....
Pittsburgh Area....	4.10	4.10	4.15	8.90	4.925	86.50	104.00		5.275	7.05	5.125	$11.00
Buffalo Area.......	4.10	4.10	4.15	8.90	4.925	86.50	104.00	....	5.275	7.05	5.125	11.00
Cleveland..........	....	....	4.15	8.90	4.925	......	......	....	....	....	....	11.00
Youngstown Area...	....	....	4.15	....	....	......	......	....	....	7.05	....	....
Geneva............	4.10	4.10	....	....	....	......	......	....	....	....	....	....
Los Angeles........	....	....	....	....	4.925	......	......	....	....	7.05	....	....
Pueblo............	4.30	4.70	4.75	....	....	......	95.00	....	5.275	7.05	5.125	11.00

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price u 5 tons to carload lot b New billet	Rail steel	Add switch	$/cwt for Del.	EXPANDED METAL LATHk Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCINGd Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No. 6 & 6 wires
Atlanta........	$7.31	$7.11	$7.11	$.025	$...	$38.00‡	$42.00‡	m A.P.M.* Joliet, Illinois, Donora, Penn., $3.08 F.o.b. Mill: Monessen, Penn., $3.08	A.P.M.* Joliet, Illinois, Donora, Penn., $2.02 F.o.b. Mill: Monessen, Penn., $2.02	A.P.M.* Joliet, Illinois, Donora, Penn., $3.23 F.o.b. Mill: Monessen, Penn., $3.23
Baltimore......	6.98	6.91l	....	....	....	42.00	45.00			
Birmingham...	6.35	6.15	6.15	.05	.15	47.00p	52.00p			
Boston........	7.06a	7.22	7.22	....	— —	40.50	44.50			
Chicago.......	6.46	5.75ff	5.75ff	.0625	— —	43.00C	50.00C			
Cincinnati.....	6.93ak	6.91r	....	....	.15	39.00szee	43.00szee			
Cleveland......	6.79	5.61v	....	— —	— —	39.00‡	43.00‡			
Dallas.........	9.05	7.25	7.25	— —	— —	49.00	52.00			
Denver........	7.95	7.30e	....	— —	— —	52.50s	54.50qs			
Detroit........	6.91	7.04n	— —	— —	.20	50.50	54.50			
Kansas City...	7.05nn	7.27	....	— —	— —	43.50	45.00			
Los Angeles....	7.35fhh	6.85g	....	— —	— —	51.00	57.00			
Minneapolis....	6.92hh	7.53ll	7.53ll	....	— —	37.00	41.00			
Montreal......	8.20iB/9.20A	6.20i	6.20g	....	— —	53.50h	58.50h			
New Orleans...	....	5.98ok	....	.05	— —	66.00	60.00			
New York......	7.20	7.01	7.01	— —	.80	38.50st	44.00st			
Philadelphia...	6.42	6.67	....	— —	— —	38.00‡	42.00‡			
Pittsburgh.....	6.40	6.40	....	— —	.10	37.60	39.60			
St. Louis......	6.86a	6.30c	6.30e	— —	— —	55.00aa	56.00aa			
San Francisco..	7.25	6.85l	....	— —	— —	40.50	43.50			
Seattle........	4.85e	6.20el	....	...	— —	51.00smm	57.00smm			

* At Producing Mill.

‡ Delivered. b Less than 700# add 50¢; 700–1499# add 65¢; 1500 to 7999# add 50¢. c 20 tons or over base. d Mill price plus freight. e F.o.b. plant. f Includes delivered in free delivery zone. g 10,000 to 39,999 lbs. h List price. Dominion tax exempt. Provincial and Municipal tax extra. i Plus Dominion, Provincial and Municipal sales tax. k F.o.b. city. l Intermediate and hard grade, new billet. m Per sq. yd. n 5–10 tons. o 5 to 20 tons base. p Del. of 500 sq. yd. or more. q Std. ribbed, 4 lb. per sq. yd. r 5 tons or over. s LCL. t Asphalt coated. u Note: Revised size extra—1 in., 1¼ in., 1½ in., 30¢, ⅞ in., ¾ in., 45¢, ⅝ in., 55¢, ½ in., 80¢, ⅜ in., $1.10, ¼ in., $2.20. v 20 tons. Straight. w Copper bearing. y $0.0093 transportation tax included z Copper alloy. aa Delivered truck to job. Contractor to do unloading. ee F.o.b. cars. ff Carload lots. gg Including sales. hh 10,000–19,999 lbs. ll 5 to 8 tons, f.o.b. city. mm 2% off for cash. nn 1–5 tons. # 10 tons to CL. a 2000–9999 lbs. A. Amer. struct'l shapes B. Canadian shapes. C Deliv to contractor.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.a	ASBESTOS CEMENT PIPE per lin. ft.; f.ob. city 6" Pr Cl. 150	12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot; Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft.; carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft.; delivered: ASTMC 14-41 12 in.	24 in.
Atlanta.......	$101.00	$1.45	$2.42	$ .545	$1.27	$4.82	$12.925	$248.00	$356.00	$0.90m	$3.40m
Baltimore.....	121.50	1.45	2.42	.578	.999	4.095A	11.1725A	178.20	274.80	.95	2.60
Birmingham...	103.00	1.45	2.42	.42	.75	2.99	....	250.00‡	375.00‡	1.25m	2.75m
Boston........	122.00	1.47	2.20	.553uvy	1.0665uvy	4.41uvy	11.90uvy	187.80v	289.20v	1.62mg	3.95mg
Chicago.......	107.00	1.45	2.20	.70m	1.35m	5.62m	13.50m	150.00‡	270.00‡	.80	2.80
Cincinnati.....	106.00	1.47	2.29	.581y	1.120y	4.41y	11.375y	164.40	254.10	.80m	2.95m
Cleveland.....	108.00	1.47	2.29	.462x	.945x	3.69x	10.04x	158.00m	245.65m	.82m	3.10m
Dallas.........	112.00	1.47	2.54	.436	.822	3.234b	9.17b	......	......	.49	1.60
Denver........	115.00	1.53	2.54	.45dd	.78dd	3.48dd	....	......	......	.74m	2.50m
Detroit........	108.00	1.47	2.29	.75	1.45	5.75	15.50	230.00m	350.00m	.86	3.47
Kansas City...	113.00	1.47	2.29	.53	.945	3.87	10.60	250.00	480.00	.80g	3.25g
Los Angeles....	126.35	1.53	2.29	.62f	1.26f	5.21f	14.89f	228.20f	348.90f	.95	2.75ff
Minneapolis*..	112.00	1.49	2.42	.72mo	1.32mo	5.32mo	....	......	......	1.38h	3.93h
Montreal......	110.00	....	....	1.07z	1.73z	5.52z	8.93e	......	......	1.17h	3.11j
New Orleans...	101.50	1.45	2.42	.53	.965	5.13	....	300.00bb	500.00bb	.65	2.29
New York.....	111.35	1.47	2.20	.61	1.22	4.82	12.81	......	......	1.15	3.00
Philadelphia...	110.00	1.45	2.20	.65	1.25	4.95A	12.65A	300.00‡	350.00‡	1.60h	3.95h
Pittsburgh.....	110.00	1.47	2.20	.468m	.864m	3.26m	8.71m	152.00	244.00	1.05h	2.50h
St. Louis......	112.00	1.45	2.29	.56	1.03	4.22	9.80	180.00l	380.00l	1.20il	2.85hl
San Francisco..	127.00	1.53	2.29	.61d	1.20d	5.08d	12.57d	240.00l	400.00l	.73	3.02
Seattle........	122.00	1.54	2.42	.51b	.91b	....	....	150.00c	......	.77ee	2.30ee

*WROUGHT STEEL PIPE (Full standard weight) Discount from list, see footnote

Mill	2½ & 3 in., Butt Weld† Black %	Galv. %	3½ to 6 in., Lap Weld† Black %	Galv. %
Lorain, Ohio......	36.75	20.50	....	....
Aliquippa, Pa.....	36.75	20.50	27.75a	11.00a
Sparrows Pt., Md..	34.75	18.50	22.75a	6.00
Benwood, W. Va...	36.75	20.50	26.50d	9.75d
Youngstown, O....	36.75	20.50	....	....
Indiana Harbor, Ind.	35.75	19.50	26.75ab	10.00a
Sharon, Pa.......	36.75	21.00	....	....
Wheatland, Pa.....	36.75	20.50	27.75a	11.00a
Etna, Pa.........	36.75	18.50b	26.50d	7.75d
Fontana, Calif....	23.75b	10.00b	14.75ab	0.50ab

† Threaded and coupled. a 3½ to 4 in. b Continuous weld. c 5 and 6 in. d 6 in.

‡ Delivered. a Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually, $1 per ton less. b Extra strength ASTM C 200–44T. c 4-in., $90. d SS361-A. e 30-in. f F.o.b. factory. g Culvert pipe. Reinforced, ASTM C76–41. h Reinforced, ASTM C75–41. i Reinforced, ASTM C76–37. j Centrispun. No. standard specifications in Can. l F.o.b. plant. m Truck delivery. o Listed price is based on LCL (no minimum). u ASTM C13–40. v C.L.f.o.b. origin, freight allowed. x 2 ft. lengths. y 3 ft. lengths. z CESA A 60–1941 specifications used. aa *Extra strength ASTM C–200–50.* A standard strength. *6", $1.67 per ft.; carlots, F.o.b. track Class 150. bb Freight allowed to destination in city. dd LCL delivered, f.o.b. truck. ee 2% off for cash. ff 21".

*WROUGHT STEEL PIPE: Deduct discounts shown above from the following standard list consumers carload prices to get mill price. List prices per ft. (based on approx. $200 per net ton): *Butt Weld* ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in., 58½¢; 3 in., 76½¢. *Lap Weld* 3½ in., 92¢; 4 in., $1.09; 5 in., $1.48; 6 in., $1.92. Add freight rates plus 3% transportation tax to get destination price.

WROUGHT IRON PIPE: List prices per ft. same as for wrought steelpipe, but add following "discounts" to get Pittsburgh mill price: *Butt Weld* — 1 in. black, + 32.75, galv. + 61.0; 1¼ in. black, + 32.75, galv. +60.50, 1½ in. black, + 29.25 galv. + 56.75; *Lap Weld* — 2½ in. to 3 in. black + 33.50 galv. + 59.5; 4½ in. to 6 in. black + 30.50 galv. + 54.75. Add freight rates plus 3% transportation tax to get destination price.

(*Continued on p 54*)

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F.O.B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)

All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1 Lengths up to 20 ft. (Prices in italics)

LONG LEAF Y. P. Merchantable grade up to 20 ft.

PLYWOOD Rail freight increment (See note for base price)

	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	Long Leaf 2x12 Rgh	Long Leaf 12x12 Rgh	Plywood ⅝"	Plywood ¾"
Atlanta †	**$79.00**	**$82.50**	**$73.50**	**$76.00**	**$79.50**	**$83.00**	**$81.00**	......	......	......	......	$22.32	$27.24
Baltimore *	**90.00**	**93.00**	**77.50**	**77.50**	**77.50**	**85.00**	**112.50**	......	......	**$155.00**	**$155.00**	25.92*	31.60*
	102.00g	*102.00g*	*94.00g*	*94.00g*	*94.00g*	*94.00g*	*96.00*	*$105.00*	*$105.00*				
Birmingham †	**80.50**	**82.50**	**70.50**	**80.50**	**83.50**	**85.50**	**95.50**	......	......	**115.50**	**155.50**	21.78	26.58
	75.50	*75.50*	*70.50*	*70.50*	*70.50*	*69.50*	*75.50*	*75.50*	*75.50*				
Boston	**96.00a**	**99.00a**	**90/98a**	**92/98a**	**94/100a**	**96/108a**	......	......	......	......	......	25.92*	31.60*
‡	*93.00a*	*93.00*	*94.50*	*94.50*	*94.50*	*94.50*	*98.00*	*100.00*	*104/108*				
Chicago **	**95.00**	**98.00**	**86/87**	**95.00**	**97.00**	**100.00**	**104.00**	......		**132.00**	**132.00**	22.45*	27.37*
	95.00	*95.00*	*97.00*	*99.00*	*100.00*	*102.00*	*108.00*	*108.00*	*108.00*				
Cincinnati *	**91.25**	**97.00**	**81.25**	**90.25**	**97.00**	**99.25**	**113.50**	......	......	**134.50**	**134.50**	25.00*	30.48*
	104.00	*104.00*	*106.00*	*104.25*	*105.75*	*104.00*	*130.50*	*130.50*	*130.50*				
Cleveland **	**90.00**	**92.00**	**85.00**	**91.00**	**93.00**	**96.00**	......	......	......	......	......	25.37*	30.93*
	......	......	*94.00*	*95.00*	*95.00*	*95.00*	*107.00*	*107.00*	*107.00*				
Dallas k†	**70.00**	**79.00**	**76.00**	**66.00**	**66.00**	**64.00**	**117.00**	......	......	**96.00**	**117.00**	18.72	22.80
Denver *	*Not in stock*		*101.00*	*101.00*	*101.00*	*102.00*	*122.00*	*135.00*	*140.00*	......	......	13.92	16.98
Detroit ‡	**108.00**	**112.00**	**100.00**	**108.00**	**113.00**	**115.00**	......	......	......	......	......	25.00*	30.48*
	91.50	*93.50*	*93.50*	*94.50*	*88.25*	*88.00*	*108.50*	*115.00*	*115.00*				
Kansas City *	**107.50**	**107.50**	**107.50**	**105.00**	**108.00**	......	......	......	......	......	......	16.56	20.16
	105.00	*105.00*	*105.00*	*105.00*	*105.00*	*107.50*	*150.00*	*150.00*	*150.00*				
Los Angeles [1]	*90.00*	*90.00*	*90.00*	*90.00*	*90.00*	*90.00*	*118.00*	*123.00*	*118.00*	......	......	16.61*al	20.25*ab
Minneapolis #	*155.00*	*155.00*	*155.00*	*155.00*	*155.00*	*155.00*	*155.00*	*155.00*	*155.00*	......	......	19.89*	24.25*
Montreal	**ab90.00**	**92.00**	**92.00**	**92.00**	**102.00**	......	......	......	......	......	......	......	......
	165.00	*165.00*	*165.00*	*165.00*	*165.00*	*165.00*	*165.00*	*165.00*	*165.00*				
New Orleans †	**100.00**	**100.00**	**97.50**	**85.00**	**90.00**	**94.00**	**118.00**	......	......	**150.00**	**148.00**	18.72	22.80
†	*97.00*	*101.00*	*109.50*	*109.50*	*107.50*	*107.25*	*107.50*	*117.50*	*107.50*				
New York [3]	**106.50**	**109.00**	**112/115**	**117/122**	**117/122**	**122/127**	**150/160**	......	......	**220/250**	**220/250**	25.92*	31.60*
	......	......	*Range from $115.00 to $120.00*				*135/150*	*145/155*	*145/155*				
New York **	**86.00**	**88.00**	**71.00**	**86.00**	**88.00**	**90.00**	**120.00**	......	......	**190.00**	**190.00**	......	......
	87.00	*87.00*	*90.00*	*90.00*	*91.00*	*91.00*	*102.00*	*112.00*	*112.00*				
Philadelphia ‡			**Range from $110.00 to $127.00**				**110/127**	......	......	**210/220**	**210/220**	25.92*	31.60*
			Range from $120.00 to $150.00				*130/140*	*150.00*	*150.00*				
Pittsburgh †			**Range from $95.00 to $100.00**				**110/120**	......	......	**110/120**	**115/125**	25.92*	31.60*
			Range from $110.00 to $120.00				*130/140*	*140/155*	*140/155*	......	......		
St. Louis	**#c110.00e**	**112.00e**	**98.00d**	**105.00d**	**114.00e**	**115.00e**	......	......	......	......	......	18.72	22.80
	......	......	*108.00d*	*114.00e*	*114.00e*	*115.00e*	*152.00e*	*162.00*	*177.00*	......	......		
San Francisco A†	*55.00*	*55.00*	*63.00*	*62.00*	*62.00*	*61.00*	*57.00*	*58.00*	*58.00*	......	......	12.22*a	14.91*a
Seattle †	*75.00*	*75.00*	*75.00*	*75.00*	*75.00*	*75.00*	*85.00*	*85.00*	*85.00*	......	......	......	......

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* *a* Spruce *b* Tax exempt. *c* 5M lots. *d* 8–12 ft. lengths. *e* 8–16 ft. lengths. *g* No. 1 common. *i* 8 ft. lengths. *k* No. 3 common. *n* ⅓ #1, ⅓ #2 & ⅓ #3.

A **Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft.bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates** for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Plyform grade Fir Plywood, 4′ by 8′ panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on ⅝", $159.00; on ¾", $181.00. Exterior plyform ⅝" $179.00, ¾" $203.00. For other centers add rail freight increment from table on proper size Oiling and edge sealing charges included. *a* Lower rate by water shipment *b* 50,000 lb. minimum.

*** Incl. new freight rates. Rates for other cities not avail. as we go to press:**

GLASS, EXPLOSIVES, CHEMICALS

	WINDOW GLASS Discounts from jobbers list, Feb. 1, 1950*a* Single or Double Thickness A quality	WINDOW GLASS B quality	EXPLOSIVES Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*
Atlanta	79%	80%	$0.2365
Baltimore	78%*d*	80%*d*	.2365
Birmingham	83%	83%	.1840
Boston	77-10%	77-10%	.2365
Chicago	76%	76%	.2365
Cincinnati	78%	78%	.2365
Cleveland	78-10-10%	78-10-10%	.2765
Dallas	75%	75%	.2440
Denver	79%	79%	.2415
Detroit	78-10-10%	78-10-10%	.2365
Kansas City	80-10%	80-10%	.2415
Los Angeles	73%	78%	.2390
Minneapolis	75-10%	75-10%	.2415
Montreal	40-5%*bc*	40-10-5%*b*	21.35*h*
New Orleans	78%	77%	.2415
New York	80-10%	80-10%	.3975*g*
Philadelphia	78%	80%	.2365
Pittsburgh	82%	82%	.2090
St. Louis	80-10%	80-10%	.2415
San Francisco	70%	70%	.2365
Seattle	73%	76%	.2390

Price of 60% Ammonia Gelatin is $0.15 per lb. higher than 40% in U.S.; $1.75 per 100 lbs. higher in Canada.

Glass; a Jobbers' list price per box. 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. *b* Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. *c* Single thickness. *d* Discount 6/15/52.

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. *g* In borough of Kings, Queens and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. *h* F.o.b. Beloeil (near Montreal), per 100 lb. forcite, 40%. Forcite 60%, $23.10.

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.184	$0.2165	$0.2365
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.189 – .1965	.2215– .229	.2415– .249
Rocky Mtn. States	.189 – .2015	.2215– .229	.2415– .254
Pacific N. W. States	.1865– .199	.219 – .2315	.239 – .2515
Pacific S. W. States	.184 – .1915	.2165– .219	.2365– .2415

PILES, TIES F.O.B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in.— 2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in.— 2-ft. from butt	6-in.	60 to 69-ft.	.58	....
12-in.— 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.— 3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.— 2-ft. from butt	6-in.	50 to 69-ft.	.50/.68	....
14-in.— 2-ft. from butt	6-in.	70 to 79-ft.	.78/.83	.93
14-in.— 2-ft. from butt	5-in.	80 to 85-ft.	.83/.93	.94
14-in.— 2-ft. from butt	5-in.	85 to 89-ft.	....	1.00
14-in.— 2-ft. from butt	5-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

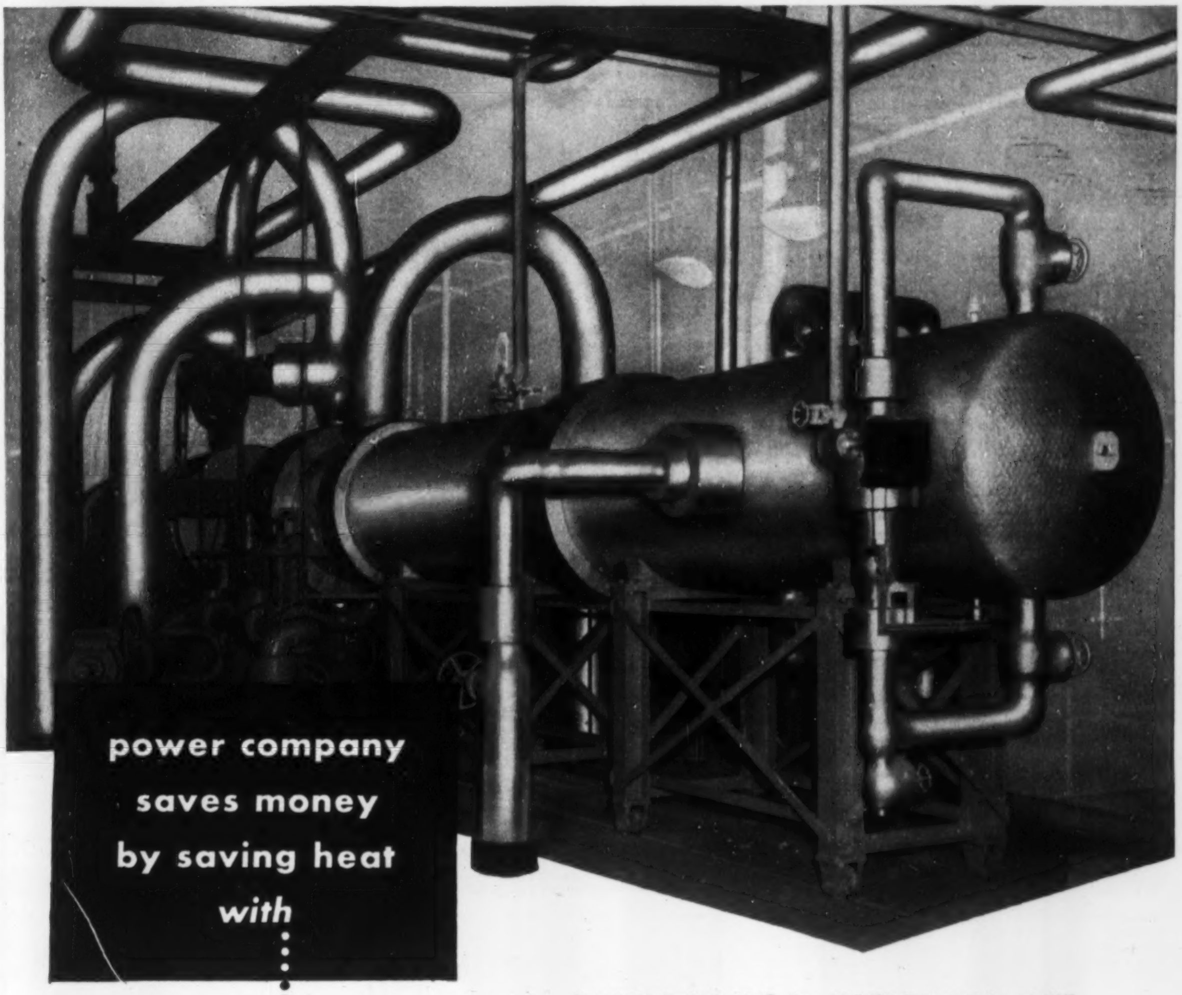
Prices f.o.b. per tie for carload lots:		6"x8"x8′ Untr.	6"x8"x8′ Tr.	7"x9"x8′6" Untr.	7"x9"x8′6" Tr.
Boston	Oak *i*	....	....	....	....
	Pine *i*	....	....	....	....
New York	S. L. Sap Pine	$2.55	$4.35	$3.45	$5.45
	Mixed Oak	3.10	4.65	3.70	5.95
Birmingham	Hardwood	2.40	3.88*a*	2.85	4.58*a*
Chicago	Red Oak	....	3.40*a*	....	4.30/4.40*a*
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.55	3.90	3.45	5.10
St. Louis	White Oak	3.10	....	3.90	....
	Red Oak	3.00	3.75*a*	3.70	4.60*a*
	Sap Pine or Cypress	....	3.55*a*	....	4.50*a*
San Francisco	Douglas Fir	2.15*ef*	3.15*ef*	2.90*bf*	4.25*caf*
Montreal	Birch or Maple	....*h*	....*h*	....*h*	....*h*

Tr.— Treated; Untr.— Untreated. *a* Creosoted. *b* 7" x 9" x 8′. *c* Empty cell. *e* Green. *f* F.o.b. cars. *h* No constant price available. *i* Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.095
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	27.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.30
Soda ash, 58%, in paper bags, per 100 lb. dense	1.75
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.85
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	10.35



power company
saves money
by saving heat
with

Steam heater insulated with "Featherweight" 85% Magnesia blocks and K&M asbestos cement. Meramec Power Plant, Union Electric Co., St. Louis, Mo. Insulation Contractor: Armstrong Cork Company

"Featherweight"® 85% MAGNESIA

In Union Electric Company's Meramec Power Plant, "Featherweight" 85% Magnesia was used to insulate the steam heater pictured above. Such an application is a typical one for dependable "Featherweight."

By itself this material (85% basic carbonate of Magnesia and asbestos fiber) is effective on piping and equipment with temperatures up to 600° F. Used with K&M Hy-Temp Insulation (diatomaceous silica), its range is extended to 1900° F.

Hy-Temp is applied directly to the hot surface, and "Featherweight" is used as the second layer. The two insulations are applied with staggered vertical and horizontal joints—thus eliminating heat loss which occurs on single layer installations when the expansion of hot piping and equipment causes the joints to open.

This K&M combination insulation will last the life of the equipment it serves, will withstand moisture, alternate heating and cooling, wetting and drying. Both materials are supplied in various sizes and thicknesses.

Your K&M distributor is an experienced applicator who will gladly give you more information about these heat-saving, money-saving K&M insulations. Or write directly to us.

KEASBEY & MATTISON COMPANY • AMBLER • PENNSYLVANIA

Nature made asbestos . . . Keasbey & Mattison has made it serve mankind since 1873

K&M best in asbestos ®

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over, 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.00	$247.00	$327.00	$342.00	$381.50	$27.38	$27.38	$19.00	$17.50	$.....
Baltimore	186.00	198.35	372.00	421.50	549.00	627.00	36.00*k*	41.00*k*	32.00	21.50	.....
Birmingham	126.00*p*	136.00*p*	......	284.00*p*	......	......	23.50*ff*	28.00*gg*	29.25	17.30	.....
Boston	196.00†	209.00†	392.00†	383.25†	......	......	36.85*p*	39.85*p*	30.00†	28.00†	.....
Chicago	135.00	145.00	280.00	......	......	......	26.00	28.00	30.80	26.00	.....
Cincinnati	185.00*j*	195.00*j*	260.00*jdd*	......	......	......	45.00*j*	46.00*j*	26.00*j*	26.00*j*	.....
Cleveland	170.00**	181.00**	......	......	......	......	34.50	34.50	28.25	23.25	32.00*ee*
Dallas	......	118.00	......	......	......	......	19.75	35.25	32.00	21.80	.....
Denver	......	......	......	......	......	......	34.00	41.00	34.80*bb*	28.00*bb*	34.00*bb*
Detroit	130.00	138.00	259.00	......	317.25	362.60	37.75*cc*	36.75*cc*	33.50	29.50	.....
Kansas City	127.50	147.50	270.00	270.00	340.00	400.00	28.50	.....	32.00	26.00	28.50
Los Angeles	*r*	*r*	*r*	*r*	*r*	*r*	27.50§	.....	34.00	34.00	35.00
Minneapolis	175.00*p*	196.00*p*	407.00*p*	196.00*p*	......	......	35.00*vp*	45.00	39.00*bbe*	29.00*bbe*	41.00*bbde*
Montreal	165.00*aq*	181.00*au*	325.00*au*	230.00	248.00*e*	......	38.50	45.00	34.80	32.50	26.00*u*
New Orleans	170.00	170.00	310.00	380.00	......	......	31.00	.....	.....	28.00	28.00
New York	140.95*h*	150.30*h*	206.70*ch*	225.50*hn*	......	......	37.00	.....	36.00	32.00	.....
Philadelphia	145.30	155.00	290.60	348.70	......	......	30/34	35/42	25.00	23.00	2.97
Pittsburgh	118.00	126.00	192.00	224.00	286.00	328.00	36.00	46.00*y*	25.00	23.00	2.97*m*
St. Louis	142.00*cc*	160.00*cc*	319.00*cc*	465.00*cc*	439.00	621.50	40.00*sl*	36.00*s*	.90*saa*	.75*saa*	1.25*aaspee*
San Francisco	156.85*a**	177.10*a**	235.30*dda**	......	......	......	37.00	.....	26.60	26.60	2.65*m*
Seattle	223.00*cc*	230.00*cc*	......	240.00*ccw*	......	......	34.00*s*	49.00*s*	42.00*shh*	37.50	3.90*mhh*

† F.o.b. yard Roxbury. *a* Smooth. *b* Per 50 lb. bags. *c* 6 x 12 x 12 in.-3 cell. *d* Pulverised hot. *e* 5%, 10th following month. *g* 5½ x 8 x 12. *h* F.o.b. trucks, job site N.Y.C. *j* Truck load or over. *k* $1.00 discount *l* Red face. *m* Per bbl., 180 lb. *n* 7¾ x 7¾ x 12. Speed title. *p* Truck lots. *q* Provincial and Municipal tax extra. *r* Not used because of earthquake danger. *s* 2% discount for cash. *t* 5½ x 8 x 11½. *u* Tax exempt. *v* Sand lime. *w* 5 x 8 x 12. *y* Stacked. *z* Pebble lime price per 80 lb. sack. *aa* Price per sack. Lime not sold per ton. *bb* LCL. *cc* Truck delivery. *dd* 6 x 12 x 12. *ee* Pebble lime. *ff* 80% common. *gg* Select. *hh* LCL. § F.o.b. yard. ** Warehouse delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry *a*	WHITE LEAD Per 100 lb. in 100 lb. cases in oil *w*	READY-MIXED PAINT Per gal., drums Graphite *b*	Aluminum *c*	Ferric Oxide *d*	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85-90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl. per ton
Atlanta	$15.75	$28.275	$3.26	$3.51	$3.01	$2.74	$3.01	$2.98	$0.405	$39.75
Baltimore	15.50	27.90	2.75	4.25	3.35	2.66	4.43	4.43	.47	45.56
Birmingham	15.75	28.275	3.90	3.40	....	2.93	2.93	2.93	....	42.00*ee*
Boston	15.50	27.90	....	...	....	2.98*gg*	3.03*og*	3.03*og*	.42*g*	48.50*g*
Chicago	15.50	27.90	....	..	...	3.29‡*u*	3.29‡*o*	3.29‡*o*	38.00‡*bbr*	48.00‡
Cincinnati	15.50	27.90	..	....	....	2.66	2.735	2.735	.46*y*	47.86
Cleveland	15.50	27.90	2.42*pgg*	2.60*gg*	2.66*gg*	2.97*q*	2.91*o*	2.91*o*	.43*y*	40.70*hh*
Dallas	15.75	28.65	....	4.05		3.50*q*	3.75*o*	4.35*o*	.36	58.50*hh*
Denver	16.00	28.40	3.29	5.15	3.04	2.66	2.61*o*	2.61*o*	.43*ff*	47.00
Detroit	15.50	27.90	2.35	3.25	2.50	2.97	2.85*f*	2.91	.53	44.00
Kansas City	15.50	28.65	....	2.71*ys*	2.65	3.40	3.20*o*	3.20*o*	.43	53.00
Los Angeles	15.50	28.15	3.30*	4.50*	4.20*	2.63*	1.70*e**	*l*	.58*	*l*
Minneapolis	15.50	29.86/28.02	....	....	....	2.74*idd*	2.74*hidd*	2.74*hidd*	.44*idd*	42.00*r*
Montreal	.....	21.15	2.95*Dff*	4.05*Eff*	3.25*Fff*	4.85*t*	3.65*tf*	3.65*t*	1.24*hi*	3.78*h*
New York	15.50	27.90	....	....	....	2.79*	2.74**o*	2.74**o*	.44**z*	42.00*
Philadelphia	15.50	27.90	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	15.50	27.90	2.65	2.85	3.15	2.95	3.10*o*	3.10*o*	.35	45.00
St. Louis	15.50	27.90	....	....	....	2.65	2.74*h*	2.74*h*	.42*y*	42.50
San Francisco	15.50	28.15	2.40	....	3.40	2.95	4.00*aa*	....	.49	.....
Seattle	15.50	28.40	3.07*m*	2.93*m*	....	3.58*mgcc*	3.05*hmcc*	....	.59*mcc*	52.00*mG*

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. *a* Red lead prices change frequently due to pig lead price changes. *b* U. S. War Dept. Spec. 3-49A. *c* ASTM Spec. D266-31. *d* 80% minimum ferric oxide. *e* 15 lb. *f* Per 432 sq. ft. *g* F.o.b. yard, Roxbury. *h* Per roll. 65 lb. *i* Net carload lot prices; Minneapolis and vicinity. *k* Per cwt. *l* Not used. *m* 1% discount for cash. *n* F.o.b. city. *o* Per 60-lb. *p* 6-drum, 50 gal. ea. *q* Per 90-lb. roll. *r* F.o.b. factory, Chicago. *s* 466 Med. *t* Federal tax included. *u* Per 90 lb. square. *v* Per ton. *w* Price to large paint contractors is $1.25 less *x* Mineral surfaced. *y* 55-gallon container. *z* Drums. *aa* Approximate cost per 100 lbs. *bbc* Roofers coating and cement; Price per ton. *cc* LCL, truck delivery. *dd* 2% cash discount. *ee* Asphalt pitch in 100 lb. package. *ff* 5-gal. drums. *gg* F.o.b. factory. *hh* Incl. freight. *D.* Std Black. *E.* Ready-mixed. *F.* Over 80% ferric oxide. * Aver. wt. approx. 425 to 550 lbs. drum. G Freight allowed to destination not exceeding .50 cwt.

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Common Labor Heavy Const.
Atlanta	$3.10	$2.50	$2.75	$2.50	$2.90	$2.75	$2.90	$1.28	$1.28
Baltimore	3.20d	2.75	3.275i	3.10/3.25	3.075i	2,975	2.975f	1.675i	1.675i
Birmingham	3.15	2.40	2.825b	2.245	2.62	2.875	2.875b	1.30	1.40
Boston	3.185e	2.75	3.15i	3.20	3.20J	3.13R	3.10d	1.99e	1.99e
Chicago	3.40k	3.15e	3.20m	3.00m	3.525s	3.37f	3.24e	2.35b	2.35b
Cincinnati	3.225	2.875	2.99b	2.75/3.00	3.10	3.12N	3.175b	2.02	2.02
Cleveland	3.25i	3.20♯	3.20i	3.20	3.20	3.20	3.20e	2.45	2.45
Dallas	3.50	2.625	2.75	2.75	3.437	2.90	2.90	1.40	1.40
Denver	3.50	2.775	2.75	2.705	3.30	3.00	2.97	1.80	1.80
Detroit	3.33e	3.08e	3.23e	3.23e	3.32l	3.22H	3.15b	2.28e	2.28e
Kansas City	3.625	2.675	2.805	2.64/2.885	3.25	2.987e	3.075b	1.98	1.98
Los Angeles	3.285G	2.70	2.925b	2.57	3.437S	3.10	3.225e	2.05	2.05
Minneapolis	3.125	2.70	2.82	2.65	2.90m	3.20n	2.875	1.95	1.95
New Orleans	3.05	2.42	2.80m	2.60	2.625	2.925b	2.75e	1.375	1.375
New York	3.874br	3.57bJ	3.975p	3.84J	4.15A	3.63asF	3.815bL	2.415P	2.415P
Philadelphia	3.62i	3.10	3.51iM	2.875/3.625	3.55be	3.55u	3.515e	1.875	2.175
Pittsburgh	3.475b	3.20b	3.475b	3.325b	3.30b	3.35	3.00	2.025b	2.025b
St. Louis	3.62c	2.975b	3.025b	3.05	3.25b	3.28c	3.05H	2.095b	2.095b
San Francisco	3.475bk	2.905b	3.075b	2.66	3.45eb	3.225U	3.275K	2.075b	2.075b
Seattle	3.30	2.75d	2.78	2.78	3.15	2.925	2.95T	2.25	2.35d
Montreal*†	2.00	1.80	1.90	1.70	2.00	1.90	1.90	1.25	1.25

* Cost of living bonus now included in basic wage. ♯ Includes 5¢/hr tool replacement. † Plus 2% vacation pay.

a 6 hr. day. b 7 hr. day. c Incl. 3% vac. stamp fund plus 7¢ WF for bricklayers; 4% VF for electricians plus 8¢ WF, 1% PF d Incl. 11¢ H&WF. e Incl. 6¢ H&WF. f Incl. 6% WF. g Incl. 11½¢ WF. h $2.625 homes & housing plus 7½¢ WF. i Incl. 12¢ WF and 15¢ PF. j Incl. 10½¢/hr.WF. k Incl. 7½¢/hr. WF. l Incl. 4% VF. m Incl. 5¢/hr WF. n Incl. 20¢ H, W, Ins., Vac. & Retirement. o Incl. 10¢ PF, 8¢ WF. p Incl. 3% WF, 3% PF. r Incl. 3½% WF and 20¢ PF. s Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. t Incl.7½¢ H&WF. u Incl. 1½% WF. v Incl. 10¢ WF. w Negotiating. x Incl. 8¢ WF. y Incl. 22½¢ WF. z Incl. 7½¢ IF, 5¢ H&WF. A Incl. 15¢ WF, 15¢ PF & 20¢ B.F. B Incl. 3% WF. C Incl. 2½¢ H&WF. E Plus 5% WF, plus travel pay per day. F Plus $4/per day Annuity contrib. G Incl. 11¢ H & WF. H Incl. 7¢ WF. I Incl. 15¢ H&WF. J Incl. 5% WF. 6PH. K Incl. 10¢ H&WF 10¢ VF, 2½% PF. L Incl. 3% WF. 3% PF, 2% VF, 1% EF. M Incl. 7½¢ PF. N Incl 1% WF O Incl 2% WF, 1% PF. P Incl. 5% WF, 6 PH. R Incl. 12¢ WF and 1¢ apprentice. S Incl. 12½¢ H and WF. T Incl. 21¢ H, W & VF. U Incl 7½¢ WF, 4% VF, 1% PF.

MEXICO CITY PRICES

In Pesos, F.o.b. City		Dec. '53	Jan. '54
Common Wages—Building			
(8 hr. day) (Peons)	av. per hr.	.84	1.00
Common Wages—Heavy			
Const. (8 hr. day) (Peons)	av. per hr.	.84	1.00
Skilled Labor Wages			
Carpenters (8 hr. day) 1 cl.	av. per hr.	1.88	2.25
Bricklayers (8 hr. day) 1 cl.	av. per hr.	1.88	2.25
Struct. Iron Workers (8 hr. day) ....Remachadores.	av. per hr.	1.13*	1.13*
Struct. Steel Shapes			
3"-15" x 12 meters	per metric ton	1224.23	1224.23
Reinf. Steel. Corr. Rods			
¼" x 11 meters	per ton	1250.00	1200.00
⅜" x 11 meters	per ton	1240.00	1200.00
½" x 11 meters	per ton	1230.00	1200.00
⅝" x 11 meters	per ton	1220.00	1200.00
¾" x 11 meters	per ton	1220.00	1200.00
1" x 11 meters	per ton	1220.00	1200.00
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	60.00	60.00
Rose Gravel	per tr. load	55.00	55.00
Cement, Std. Port. (Tolteca)	per ton	160.00	160.00
Lumber			
Mex. Sacred Fir (OYAMEL)	per M ft.	750.00	850.00
1st Class Pine	per M ft.	1350.00	1300.00
2nd Class Pine	per M ft.	1100.00	1200.00

*1st & 2nd fl. add 40% ea. addn'l floor over preceding one

ENR Skilled Average: (Bricklayers, Carpenters, Iron workers): $3.095 **ENR Common Average:** $1.944.

GRAHAM, ANDERSON, PROBST & WHITE, ARCHITECTS • SHERMAN OLSON, INC., CONTRACTOR • RAND McNALLY BLDG., CHICAGO

how Ceco
1-SOURCE SERVICE SAVES TIME • LABOR • MONEY

■ The cost of any structure depends partly on the way materials are handled on the job.

Here Ceco 1-Source Service offers special advantages to the architect-engineer-contractor team in helping make paper savings truly realistic by integrated delivery.

One responsibility for providing concrete joist steelform service and reinforcing steel, for delivering steel joists, roof deck and metal lath, assures their arrival on the job-site as desired by the architect, just as needed by the contractor. And when there are requirements for Ceco metal windows, screens, and hollow metal doors, these products also are scheduled for arrival when needed. Result: Costly storage is avoided, material handling reduced—and work goes ahead faster.

Look at any job where multiple Ceco Products are used and you'll see neat "ground keeping," a significant sign of low material handling costs. That's just one example of how Ceco 1-Source Service can save for you. If you consult our people in the pre-planning stage, product specialists will assist you in the application of Ceco Products so you can realize further savings.

CECO GIVES YOU MORE IN 54

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General Offices: 5601 W. 26th St., Chicago 50, Illinois

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION

▲ † **N. H., Portsmouth**—WATER SUPPLY—B.A. 2/16—U. S. Eng., 857 Commonwealth Ave., Boston, Mass., water supply, off base, Air Force Base. $2,000,000. Plans deposit $15. Whitman & Howard, 89 Broad St., Boston, Mass., engrs. CD 12/11/51.

▲ † **Mass., Bedford**—CANTILEVER HANGAR—B.A. On Or About 3/4—U. S. Eng., 857 Commonwealth Ave., Boston, Zone 15, double cantilever maintenance hangar, approx. 270 ft. wide, 350 ft. long, 65 ft. high, concrete fdn. and floor slabs, structural steel frame; fire protection reservoir, pumping station, 560,000 gal. cap. rein.-con., 62 ft. wide, 62 ft. long 22 ft. deep; pumping station, 24 ft. wide, 60 ft. long, 12 ft. high, rein.-con. frame with masonry block walls; misc. piping, equip.; outside utilities, Laurence G. Hanscom Air Force Base, Eng. 19-016-54-45. $2,500,000-$5,000,000.

BIDS ASKED—BUILDINGS

▲ **Mass., Billerica**—SCHOOL—B.A. 2/8—Town, Town Hall, high school, River St. $2,000,000. Plans deposit $100 refundable. Extended date. Charles H. Cole, 2nd, 55 Waltham St., Lexington, archt. CD 1/6.

Mass., Webster—HOSPITAL—B.A. 2/9—Webster District Hospital, Geo. White, chn. Bldg. Fund, Thompson St., hospital, Thompson St. $750,000. Plans deposit $20. L. B. Briggs Assoc., Inc., 90 Park Ave., Worcester, archt. Aisner & Atwood, 10 Newbury St., Boston, assoc. archts. CD 10/28/52.

Mass., Walpole—SCHOOL—B.A. 2/11—Town, High School Bldg. Comn., Joseph Erker Jr., chn., high school addn., alterations. Plans deposit $50. Perry Shaw & Hepburn-Kehoe & Dean, 955 Park Square Bldg., Boston, archts. CD 11/13/52.

Conn., Newtown—EMPLOYEES RESIDENCE—B.A. 2/17—State, R. G. Macy, P. Wks. Comr., State Office Bldg., Hartford, Proj. B/A-A-59, employees residence bldg., Fairfield State Hospital. $300,000. Plans deposit $30. CD 11/28/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Berke-Moore Co., Inc., 8 Newbury St., Boston, Mass. LB **$2,160,538**, est. $3,000,000. hy. and bridge constr. Rte. 5, Agawam and West Springfield. Bids Jan. 19. CD 1/6.

MASSACHUSETTS—Commonwealth of Mass., Dpt. P. Wks, 100 Nashua St., Boston,

Charles Capone Constr. Co., 32 Wellesmere Rd., Roslindale, Mass. CA **$505,480**, est. $450,000. Contr. A, constr. Western Artery, Worcester. CD 1/11, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

† **M. I. O'Connor**, 696 Bridge Rd., Northampton, Mass. LB **$612,000**, est. $600,000. KITCHEN and DINING HALL addns., alterations, Spec. 53106, Proj. 1-4057, NORTHAMPTON, MASS. Office Dir. Constr. Service, Veterans Admin., Munitions Bldg., Wash., D. C. Bids Jan. 19. CD 12/4.

E. J. Cross Co., 15 Prescott St., Worcester, Mass. CA Est. **$500,000**. OFFICE, 51 Elm St., WORCESTER, MASS. Worcester Mutual Fire Insurance Co., 29 Elm St., Worcester, Mass. CD 10/20 under LB.

O. Ahlborg & Sons, Inc., 48 Molter St., Cranston, R. I. CA **$815,800**, est. $500,000. two elementary SCHOOLS, Pilgrim Park and Main Ave., WARWICK, R. I. City, Supt. Schools, C. B. McKay, City Hall, Warwick, R. I. Bids Jan. 12. CD 1/19 under LB.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, Zone 1,

A. E. Ottaviano, Inc., 80 Brook St., Croton-on-Hudson, N.Y., CA **$2,169,252**, est. $2,527,000, 0.51 mi. Acc. 2.68 Rd. Miles Saw Mill River Parkway (Mt. Kisco-Katonah Part 2) Harris Road Interchange; Railroad Ave. Access Rd., Mt. Kisco-Katonah, SH 1533, SMRP 53-2, R.C. 53-119, Westchester Co. Bids Sept. 17. CD 9/22, under LB.

▲ **American Bridge Co.**, 71 Broadway, New York 6, N. Y. CA **$3,941,958**, constr. Rte. 119-G (Rockaway Route), Jamaica Bay Crossing, bridge and high trestle superstructures from North Channel to Beach Channel, Queens Boro, NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Dec. 11. CD 12/15, under LB.

▲ **Andrew Catapano & Co.**, 88-43 76 Ave., Glendale, N. Y. CA **$1,855,471**, sewers in Quince Ave., 158 St., Laburnum Ave., 161 St., 45 Ave., Queens Boro, NEW YORK, President Queens Boro, Queens Boro Hall, 120-55 Queens Blvd., Kew Gardens 25, N. Y. Bids Nov. 4. CD 11/11, under LB.

▲ **General Electric Co.**, 1 River Road., Schenectady, N. Y. CA **$3,089,147**, power equip. for Flushing Line, IRT Div. Manhattan and Queens Boros and Liberty Ave. Line, IND Div., Queens Boro, NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Dec. 4. CD 12/9 under LB.

Horn Constr. Co., Inc., 2174 Hewlett Ave., Merrick, N. Y. CA **$549,400**, duct lines, between 159 Ave. (Howard Beach) and Liberty Ave., Queensboro, NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Dec. 4. CD 12/9, under LB.

L. I. Waldman & Co., Inc., 38-06 28 St., Long Island City, N. Y., CA **$707,033**, platform exten. to 45 Rd., 33 St., 40 St., 46 St., 52 St., 61 St., 69 St., 74 St., 82 St., 90 St., Junction Blvd., 103 St.-Corona Plaza, 111 St. and Willets Point Blvd. Stations of Flushing Line, Queens Boro, NEW YORK. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Dec. 22. CD 1/6, under LB.

▲ **Westinghouse Air Brake Co.**, 1943 Herman Ave., Wilmerding, Pa., CA **$9,028,995**, furnishing, installing signal equip. for platform exten. and 11-car train operation, Times Square to Main St., Flushing Line, IRT Div., Manhattan and Queens Boros, NEW YORK, N. Y. New York City Transit Auth., 370 Jay St., Brooklyn 1, N. Y. Bids Dec. 18. CD 1/6, under LB.

▲ **Charles H. Tompkins Co., J. A. Jones Constr. Co. and D. W. Winkelman Co.**, Jefferson Bldg., Syracuse, N. Y. CA **$9,089,190**, Schedule 1, excavation, grading, paving aprons, lighting, etc.;

T. C. Bateson Constr. Co., Irwin-Kessler Bldg., Dallas, Tex., CA **$8,705,448**, Schedule 3, buildings and utilities;

Fred Raff Co., 271 Sheldon St., Hartford, Conn., CA **$1,127,970**, Schedule 2, refueling facilities, Plattsburg Air Force Base, PLATTSBURG, N. Y. U. S. Eng., 80 Lafayette St., New York, N. Y. Grand total $18,922,608. Bids Dec. 22. CD 12/28, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **John T. Brady & Co.**, 606 W. 47 St., New York 17, N. Y. CA **$2,652,000**, general constr. NURSES' RESIDENCE and SCHOOL, Queens General Hospital, JAMAICA, N. Y. Dpt. P. Wks., Municipal Bldg., New York 7, N. Y. Bids Dec. 16. CD 1/8 under LB.

▲ **North Hills Estates Homes**, c/o Stanley H. Klein, archt., 89-31 161 St., Jamaica, N. Y. Owner Builds. **$5,600,000**. 200 HOUSES on tract one block east of Little Neck Parkway at 61 Ave. and Grand Central Parkway Service Rd., LITTLE NECK, N. Y.

▲ **Rosedale Estates Homes**, c/o A. H. Salkowitz, archt., 37-60 82 St., Jackson Heights, N. Y. Owner Builds. **$3,800,000**. 165 HOUSES on tract at West St. and Rosedale Ave. north of Mamaroneck Ave., WHITE PLAINS, N. Y.

▲ **Hercules Powder Co.**, Delaware Trust Bldg., Wilmington, Del., Own Forces, **$4,000,000**, manufacturing PLANT, BURLINGTON, N. J. CD 1/20.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Fla., Eglin Air Force Base**—INCENDIARY CHEMICAL AREA—B.A. 2/9—Director Procurement Air Proving Ground Command, Eglin Air Force Base, incendiary chemical area, No. 08-603-54-27.

Fla., Deland—DORMITORY—B.A. 2/10—Stetson University, Deland, dormitory, $600,000. Griffin & Gomon, P.O. Box 1671, Daytona Beach, archts. CD 11/23.

† **Fla., Jacksonville**—PLANT MAINTENANCE—B.A. 2/25—Dpt. Navy, P. Wks. Officer, Naval Base, S. C., plant maintenance bldg. at U. S. Naval Air Station, NOY 75239. Plans deposit $40. CD 12/3/51.

† **Fla., Orlando**—SUPPLY BUILDING, etc.—B.A. On or About 3/2—U. S. Eng., P.O. Box 4970, Jacksonville, organizational supply building, group supply bldgs., salvage shed and yard jet fuel storage and secondary roads, Pinecastle Air Force Base, Serial No. Eng-08-123-54-37. CD 1/31/51.

BIDS ASKED—BUILDINGS

† **S. C., Charleston**—QUARTERS RENOVATIONS—B.A. 2/10—Dpt. Navy, P. Wks. Officer, Naval Base, renovating Quarters 24 at Naval Ammunition Depot, NOY 82083. Plans deposit $10.

Ga., McDonough—SCHOOL—B.A. 2/16—Henry Co. Bd. Educ., McDonough, training school, $500,000. Extended date. Moscowitz, Willner & Millkey, 761 Peachtree St. N.E., Atlanta, archts. CD 12/29.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

A. G. Pinkston Co., 1805 County St., Portsmouth, Va. LB **$345,545**, sanitary sewerage sys., Naval Amphibious Base, NOY 78224, LITTLE CREEK, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Knappen-Tippetts-Abbett-McCarthy, 62 W. 47 St., New York, N. Y., engrs. Bids Jan. 19. CD 10/20/52, under Public Buildings.

Harrison-Wright Co., Inc., 116 W. 3 St., Charlotte, N. C., LB **$373,770**, electric distr. sys. imprvs., MORGANTOWN, N. C. Town, Morgantown, N. C. B. O. Vannort Engineers Inc., 700 S. College St., Charlotte, N. C. engr. Bids Jan. 18.

▲† **Five Boro Constr. Corp.**, 2 Lafayette St., New York, N. Y., CA, **$1,030,172**, rehabilitation of buildings, railroad spur and utilities, etc. at Homestead Air Force Base, Inv. 54-30, HOMESTEAD, FLA. U. S. Eng., P.O. Box 4970, Jacksonville, Fla. Bids Dec. 23. CD 1/14, under LB.

▲† **Blount Bros. Constr. Co.**, P.O. Box 1144, Montgomery, Ala., LB, **$2,116,508**, AMC Warehouse, roads, etc., Brookley Air Force Base, MOBILE, ALA. U. S. Eng., P.O. Box 1169, Mobile, 7, Ala. Bids Jan. 12. CD 12/21.

▲ **TENNESSEE**—State Hy. Dpt., Nashville,

Nashville Bridge Co., foot of Shelby Ave., Nashville, Tenn., CA **$1,884,258**, superstructure for Victory Memorial Bridge spanning Cumberland River, Davidson Co. Bids Jan. 8. CD 1/13, under LB.

▲† **Farnsworth & Chambers, Inc.**, 3018 Leeland St., Houston, Tex., LB **$8,940,393**, 166x380 ft. Old Hickory Dam Power House, TENNESSEE. U. S. Eng., 303 Federal Office Bldg., Nashville 1, Tenn. Bids Jan. 21. CD 12/21.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Algernon-Blair, Inc.**, P.O. Box 749, Montgomery, Ala. LB **$3,769,863**, 515 two story masonry, concrete, Public HOUSING units, PORTSMOUTH, VA. Portsmouth Redevelopment & Housing Auth., 1900 Columbus Ave., Portsmouth, Va. Bids Jan. 19. CD 12/21.

Clairborne & Taylor, 117 S. 2nd St., Richmond, Va. CA **$723,460**. LIBRARY, RICHMOND, VA. University of Richmond, Richmond, Va. Bids Dec. 17. CD 12/7.

▲ **J. D. Hecin Constr. Co.**, 4901 S. Chesterfield Rd., Arlington, Va., LB, **$4,512,380**, Prop. A, total contract, 11 story;

Doyle & Russell, Central Natl. Bank Bldg., Richmond, Va., LB, **$3,686,340**, under Alt. for Prop. A, total structure with omision of interior finish on St. Philip Hospital Sect. (200-bed area)

R. P. Farnsworth & Co., Inc., 1515 S. Salcedo St., New Orleans, La., LB, **$1,800,000**, Prop. B, sub bsmnt., bsmnt. and 50-bed space only for Tuberculosis SANITARIUM and St. Philip HOSPITAL addn., RICH-

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PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $34,000; other public works $60,000; industrial buildings $82,000; other buildings $300,000.

Classes of Construction

(Name in order of Listing)

Water Supply
Sewers, Waste Disposal
Bridges
Streets & Roads
Earthwork, Waterways
Latin America
Public Buildings
Commercial Buildings
Industrial Buildings
Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects invloved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
B.A.	Bids Asked
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

MOND, VA. Medical College of Va., 12th and Marshall Sts., Richmond, Va. Baskerville & Son, 2313 W. Cary St., Richmond, Va. and Merrill C. Lee, 601 E. Franklin St., Richmond, Va., archts. Bids Jan. 20.

Bath County School Bd., Warm Springs, Va. rejected bids Sept. 11, Valley HIGH SCHOOL, WARM SPRINGS, VA. LB **$604,700.** Will re-advertise. CD 9/23, under LB.

Lambert Constr. Co., Huntington, W. Va., LB, **$685,089,** Junior High SCHOOL, CHARLESTON, W. VA. Kanawha Co. Bd. Educ., Quarrier and Elizabeth Sts., Charleston, W. Va. Bids Jan. 21. CD 12/23.

B. F. Parrott & Co., Inc., Boxley Bldg., Roanoke, Va., LB, **$670,400,** rehabilitation of WARDS A, B, C, D, E and F at Spencer State Hospital for Insane, SPENCER, W. VA. W. Va. Bd. Control, Capitol Bldg., Charleston, W. Va. Bids Jan. 21. CD 12/2.

▲ **W. H. Weaver Constr. Co.**, Greensboro, N. C., LB **$1,387,000;**
C. D. Spangler Constr., 1028 S. Blvd., Charlotte, N. C. LB **$1,387,000,** HOUSING, Cleveland Ave. Homes, NG 12-6, WINSTON-SALEM, N. C. Winston-Salem Housing Auth., Reynolds Bldg., Winston-Salem, N. C. Bids Jan. 14. CD 12/17.

Skinner & Ruddock, P.O. Box 750, Charleston, S. C., LB, **$590,000.** HOSPITAL, BARNWELL, S. C. Barnwell Co., Barnwell, S. C. Bids Jan. 6. CD 12/11.

▲ **Daniel Constr. Co.**, P.O. Box 2286, Greenville, S. C., CA, **$2,000,000** mfg. PLANT, ATHENS, GA. Westclox Div., General Time Corp., 109 Lafayette St., New York, N. Y. CD 11/27.

Iva H. Hardin Co., 174 Mills St. N.W., Atlanta, Ga., LB, **$929,875,** mfg. PLANT, ATLANTA, GA. Blue Plate Foods, Inc., 1591 Murphy Ave. S.W., Atlanta, Ga. Bids Jan. 19. CD 1/15.

Gurtler, Hebert & Co., P.O. Box 8066, New Orleans, La. CA Est. **$830,000.** 83 RESIDENCES, NEW ORLEANS, LA. Dave Wolainger, 1539 Pleasure St., New Orleans, La.

S. J. Lemoine & Co., Box 481, Bunkie, La. CA **$506,-956.** four 1-story, brick patient units at Central Louisiana State HOSPITAL, PINEVILLE, LA. State Bldg. Auth., State Capitol, Baton Rouge, La. Bids Jan. 14. CD 1/5.

Thorp Constr. Co., Box 22, Evansville, Ind. LB **$763,000,** general contract HIGH SCHOOL, HENDERSON, KY. Bd. Educ., Henderson, Ky. Meriwether, Marye & Assoc., 236 E. Short St., Lexington, Ky., engrs.-archts. Bids Jan. 18. CD 2/26/52.

▲ **Daniel Constr. Co.**, P.O. Box 2286, Greenville, S. C., CA, Approx. **$2,000,000.** textile PLANT for Cherokee Textile Mills, SEVIERVILLE, TENN. City, City Hall, Sevierville, Tenn. CD 1/15.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲ **Ind., Indianapolis**—B.A. 2/15—Bd. Sanitary Comrs., Clarence Drayer, chn., 421 N. Pennsylvania St., Zone 4, rein.-con., rein.-con. pipe Interceptor Sewer "Bean Blossom Interceptor," $2,000,000. Plans deposit $100. Moore & Heger, 810 N. New Jersey St., Zone 4, consult. engrs. CD 8/13.

BIDS ASKED—BUILDINGS

▲ **Wis., Milwaukee**—CLUBHOUSE—B.A. 2/19—Young Men's Christian Assn., 633 N. 4 St., Zone 3, 11 story clubhouse, $3,500,000. Grassold-Johnson & Assocs., 734 N. Jefferson St., Zone 2, archts. CD 1/13, under LB.

▲ **Ill., Chicago**—APARTMENTS—B.A. 2/23—Chicago Housing Auth., 608 S. Dearborn St., Chicago, Zone 5, four apartments, Gov. Henry Horner Homes, Ashland, Lake and Washington Sts., $6,000,000. Skidmore, Owings & Merrill, 100 W. Monroe St., Zone 3, archts. CD 2/26.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Alger-Rau & Assocs.**, 17024 Miles St., Cleveland, O. CA **$1,087,606,** sewage disposal plant, ASHTABULA, O. City, Ashtabula, O. Bids Jan. 6. CD 11/9.

The DeLuca Constr. Co., 1055 Grant St., Akron, O. CA **$181,766,** building trunk line from city to the treatment plant, 2 mi. south of here;
Don King, Ray Sykes & Assocs., Columbus, O., CA **$494,381,** sewage treatment plant, housing laboratory offices and equipt., COSHOCTON, O. City, City Hall, Coshocton, O. Bids Dec. 3. CD 11/19.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Scholz Constr. Co.**, 3128 Lincolnshire St., Toledo, O. Owner Builds. **$2,500,000.** 140 HOMES, W. Lincolnshire and Queenswood Blvd., facing park area, TOLEDO, O.

▲ **Emil Miller Constr. Co.**, Commerce Bldg., Rochester, N. Y., CA, **$5,000,000,** SHOPPING CENTER, 22 St. and Harlem Aves., BERWYN, ILL. National Plazas Inc., 36 W. 44 St., New York, N. Y. Awarded Jan. 14.

▲ **S. N. Nielsen Co.**, 3059 Augusta Blvd., Chicago, Ill., LB, **$1,943,700,** three APARTMENTS, COMMUNITY BLDGG., Ida B. Wells Extension at 35, 39 and Vincennes Sts., CHICAGO, ILL. Chicago Housing Auth., 608 S. Dearborn St., Chicago, Zone 5, Ill. Bids Jan. 19. CD 13/30.

Arnold Lies, 1515 New York Ave., Aurora, Ill., LB, **$774,800,** Junior High SCHOOL, GLEN ELLYN, ILL. School District 41, Duane Ave., Glen Ellyn, Ill. CD 4/10/52.

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Carson Pirie Scott & Co

CENTENNIAL COMPETITION

in City Planning

To provide a plan which will serve as an inspiration for the redevelopment and improvement of Chicago's Central Commercial District.

First Prize	**$20,000**
Second Prize	**$7,500**
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Total Awards	**$32,500**

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Approved by the Committee on Competitions of The American Institute of Architects, the Western Society of Engineers, and the National Executive Committee of the American Institute of Planners.

Considered by the Chicago Plan Commission to be a major contribution to planning in Chicago.

Professional Advisor, Howard L. Cheney, of Chicago, Illinois, Fellow of The American Institute of Architects.

Competition closes 5 P.M. Thursday, July 15, 1954.

The objective of this competition is to produce a redevelopment plan that will achieve:

(1) Increased efficiency in the functions of the Central Commercial District as the vital focal point of trade in the greater Chicago region.

(2) A high degree of convenience to the public in terms of the people working here, shopping here and engaging in regional commerce.

(3) Architectural, planning, and engineering cohesion, and the enhancement of the cultural and aesthetic aspects of the district.

The competition is open to architects, city planners, engineers, persons engaged in allied professions, and college students of these professions, who are residents of the continental United States.

Winning entries will be decided by a jury of awards consisting of recognized architects, city planners and engineers of established reputation, whose names will be announced after the jury has met and selected winning solutions.

Information given here is to be considered an announcement only. Mandatory requirements and detailed information are fully covered in a program which will be ready for mailing February 15, 1954. Your copy will be mailed promptly upon request to:

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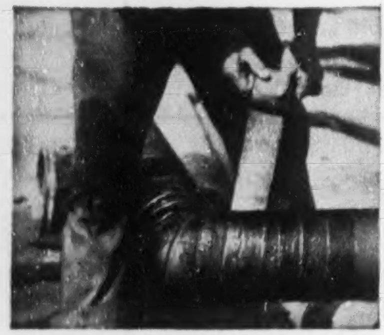

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▲ **Darin & Armstrong, Inc.**, 2041 Fenkel St., Detroit, Mich. CA **$1,282,500**. general contract brick, steel Mumford High School, 17525 Wyoming St., DETROIT, MICH. City, Bd. Educ., 1354 Broadway, Detroit, Mich. Bids Jan. 6. CD 12/8.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **Oklahoma**—B.A. 2/15—Dpt. Agriculture, Soil Conservation Service, 3600 McCart St., Fort Worth (97-54), floodwater retarding structures with earthfill embankments, etc., on Barnitz Creek, 5 mi. west and 15 mi. north of Clinton; 98-54 floodwater retarding structures with earthfill embankments etc. on Barnitz Creek, Washita River Watershed, northwest of Clinton, Sites 19, 20 and 21, near Clinton, both Custer Co.

BIDS ASKED—BUILDINGS

† **N. M., Las Cruces**—BARRACKS—B.A. 2/12—U. S. Eng., Box 1538, Albuquerque, two 2 story, Z shaped, masonry, 36x326 ft. with 36x118 ft. bsmnt., enlisted mens barracks, White Sands Proving Ground Headquarters area. $500,000-$1,000,000. CD 8/28/51.

▲ **Tex., Killeen**—HIGH SCHOOL—B.A. 2/22—Killeen Independent School Dist., Killeen, 1 story, brick, haydite block Senior High School for Fort Hood Military Reservation. $1,125,000. George E. Christensen, 709 N. St. Paul St., Dallas, archt. CD 6/5.

▲ **Minn., St. Paul**—OFFICE—B.A. 2/23—Minnesota Mutual Life Insurance Co., 156 E. 6 St., 8 story, bsmnt., 70x266 ft. office, Cedar St. between Fourth and Fifth Sts. $2,500,000. Ellerbe & Co., E. 505 First National Bank Bldg., archts. CD 1/22.

▲ **Neb., Omaha**—HOSPITAL—B.A. 3/2—Clarkson Hospital, 26 and Dewey Ave., hospital. $2,500,000. L. A. Daly Co., Insurance Bldg., archt. CD 8/27.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

MINNESOTA—State Hy. Dpt., 1246 University Ave., St. Paul,

Megarry Bros., St. Cloud, Minn. CA **$388,416**. grav., sub base, crushed rock base and plant-mixed bit. surf. 18.9 mi. between Hayfield and TH 63 north of Stewartville and in Blooming Prairie, Doge, Olmsted and Steele Counties.

O. B. Ashbach & Sons, 2975 Hamline Ave. N., St. Paul, Minn. CA **$168,694**. concrete paving 1.1 mi. in Blooming Prairie, Steele Co.;

Boyum Bros. Constr. Co., Rushford, Minn. and **Roverud Bros.**, Spring Grove, Minn. CA **$320,781**. grading 6.8 mi. between Mazeppa and Zumbro Falls, Wabasha Co. Grand total $877,891. Bids Dec. 18. CD 12/2.

▲ **TEXAS**—State Hy. Comn., Austin,

Austin Bridge Co., P.O. Box 1590, Dallas, Tex., LB **$183,807**, grading, structures, base, surf. 0.909 mi. Hy. FM 1301, Proj. C 1412-2-3, Brazoria Co.;

Adams Bros., P.O. Box 271, Kaufman, Tex. and **W. I. Crawford**, 5350 Montrose Dr., Dallas, Tex., LB **$137,167**, grading, structures, base and surf. 5.946 mi. Hy. FM 270, Proj. S 439 (2), etc., Hopkins Co.;

Austin Asphalt Co., P.O. Box 1590, Dallas, Tex., LB **$335,408**, pavement and hot mix b. conc. resurf. 16.794 mi. Hy. SH 79, Proj. C 283-4&5-8&5, Archer and Young Counties;

John F. Buckner & Sons, P.O. Box 76, Cleburne, Tex., LB **$169,981**, addnl. flexible base and b. conc. 9.388 mi. Hy. U.S. 82 and SH 37, Proj. C 46-1-25, etc., Red River Co.;

R. C. Buckner, P.O. Box 609, Jacksonville, Tex., LB **$373,949**, grading, culverts and five bridges 2.693 mi. Hy. ST 103, Proj. F 1094 (6), Angelina and Nacogdoches Counties;

Continental Constr. Co., P.O. Box BB, Port Lavaca, Tex. LB **$126,783**, concrete drainage structures and approaches 1.191 mi. Hy. ST 173, Proj. C 517-2 1&2-10&8, Atascosa and McMullen Counties;

Dew Constr. Co., P.O. Box 641, Tyler, Tex., LB **$127,499** strengthening existing base and two course surf. tr. 11.782 mi. Hy. SH 19, Proj. S 204 (9), Hopkins Co.;

J. R. Fanning, P.O. Box 1278, Lubbock, Tex., LB **$189,696**, flexible base and three course surf. tr. 11.88 mi. Hy. U.S. 380, Proj. F 1022 (5), Terry Co.;

Gaylord Constr. Co., 806 Blodgett St., Houston, Tex. and **Centex Paving Co.**, 309 Frost Natl. Bank Bldg., San Antonio, Tex., LB **$200,909**, flexible base and b. conc. 14.015 mi. Hy. SH 51, Proj. S 683 (3), Andrews Co.;

Gaylord Constr. Co., 806 Blodgett St., Houston, Tex., LB **$173,314**, hot mix b. conc. 18.913 mi. Hy. U.S. 81 and 287, Proj. C 13-5-14 and C 224-3-12, Montague Co.;

E. W. Hable & Sons, P.O. Drawer 650, Corsicana, Tex., LB **$142,388**, flexible base and two course surf. tr. 2.854 mi. Hy. FM 1006, Proj. S 1892, (1), Orange Co.;

George Kies, 4612 Ridge Oak Dr., Austin, Tex. and **R. B. Bowden**, San Marcos, Tex., LB **$184,622**, seal coat 171.061 mi. Hy. U.S. 87, etc. Proj. C 67-3-17, etc. Swisher, Lubbock, Lynn, Dawson, Crosby Counties, etc.;

Ernest Loyd, P.O. Box 1120, Fort Worth, Tex., LB **$1,629,195**, grading, bridges and c. conc. 2.136 mi. Hy. U. S. 81, Proj. UI 473 (11), Tarrant Co.;

Hugh McMillan, P.O. Box 1227, El Paso, Tex., LB **$196,559**. flexible base and asph. 7.101 mi. Hy. U.S. 80, Proj. FI 245 (12), Hudspeth Co.;

Schwope Bros., 6633 W. Commerce St., San Antonio, Tex. LB **$85,107**, seal coat 62.225 mi. Hy. U.S. 271, etc. Proj. C 248-1-10, etc., Titus, Camp and Upshur Counties;

Wendel Constr. Co., P.O. Box 231, El Campo, Tex., LB **$89,825**, grading, structures, base and surf. 2.941 mi. Hy. FM 162, Proj. S 592 (2), Liberty Co. Bids Jan. 21. CD 12/30, 1/4.

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† **The Jarbet Co.,** 903 Basse Rd., San Antonio, Tex. LB **$335,111.** taxiway extn. and airfield lighting, Webb Airforce Base, Inv. No. Eng-29-005-54-53, BIG SPRING, TEX. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Jan. 14. CD 12/28.

▲† **Oakland Constr. Co.,** 2683 Glenmare St., Salt Lake City, Utah. LB, **$1,616,094,** est. $1,249,418. 76-bed hospital and dental clinic bldgs. at Great Falls Air Force Base, Inv. 54-80, GREAT FALLS, MONT. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Mont. Bids Jan. 19. CD 1/8.

BUILDINGS

LOW BIDS AND CONTRACTS

Harold P. Hill Constr. Co., 8608 Park Terrace Blvd., Houston, Tex., CA **$353,245 (D)** 37 frame, masonry DWELLINGS, concrete slab fdn., near HOUSTON, TEX. Metropolitan Homes, c/o Lazy Creek, Houston, Tex. CD 6/12.

Jacob E. Decker & Sons, Inc., 114 Blue Star St., San Antonio, Tex., cancelled bids to have been opened Jan. 29, PROCESSING or PACKING PLANT, incl. REFRIGERATED WAREHOUSING, SAN ANTONIO, TEX. Est. **$800,000.** Will re-advertise. CD 12/28.

E. J. Burke & Sons, Inc., 1100 Goliad Rd., Houston, Tex. Purchases, Own Forces. **$400,000.** Unit 8, 50 DWELLINGS, **$310,000,** Unit 9, 32 dwellings, in new 650-lot subdivision extens. into Highland Hills, SAN ANTONIO, TEX. CD 2/25/52.

J. C. Boespflug Constr. Co., 502 N. 25 St., Billings, Mont. LB **$945,388.** 4 story, rein.-con., 55,000 sq. ft. OFFICE, BILLINGS, MONT. Socony Vacuum Oil Co., 111 Magnolias Bldg., Dallas, Tex. Bids Jan. 19. CD 12/22.

† **Dan R. Ponder, Inc.,** 327 Morgan Ave., El Paso, Tex., LB **$469,924,** est. $325,000. ADMINISTRATION BLDG., Sandia Base, Serial No. Eng-29-005-54-46, ALBURQUEQUE, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. W. C. Krueger & Assocs., Krueger Bldg., Santa Fe, N. M., engrs.-archts. Bids Jan. 14.

† **Campbell & Kay,** Box 4091, Station A, Albuquerque, N. M. LB **$630,410.** frequency coordination LABORATORY, Inv. No. Eng-29-005-54-57, White Sands Proving Ground. LAS CRUCES, N. M. U. S. Eng., Box 1538, Albuquerque, N. M. Bids Jan. 20. CD 1/13.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

▲† **California**—B.A. 2/16—U. S. Eng., 751 S. Figueroa St., Los Angeles, San Antonio Dam and Spillway, Santa Ana River Basin, San Bernardino and Los Angeles Counties, CIVENG-04-353-54-24. $4,000,000. CD 4/21/44.

† **California**—B.A. 3/16—Bureau Reclamation, Dpt. Interior, Folsom, completing Folsom Power Plant and Switchyards, Folsom Unit, American River Division, Central Valley Proj., near Folsom in Sacramento Co., Spec. DC 4104; adv. ENR 2/4. CD 4/14/44.

BIDS ASKED—BUILDINGS

▲ **Calif., Los Angeles**—SCHOOL—B.A. 2/24—Los Angeles Bd. Educ., 1425 S. San Pedro St., Reseda High School, Reseda, $4,000,000. Allison & Rible, 625 S. Westmoreland Ave., archts. CD 1/9

▲† **Ore., Salem**—WING—B.A. 4/1—State Bd. Control, Capitol, Salem, wing for State Hospital. $1,500,000. Hollis Johnston, Concord Bldg., Portland, archt. CD 12/9.

SOON LETS CONTRACT—BUILDINGS

▲ **Ariz., Phoenix**—OFFICE—Owner, c/o Wm. D. Reed, archt., Merchant Securities Bldg., Dallas, Tex., soon lets contract office. $2,750,000.

Utah, Provo—TELEPHONE BLDG.—Mountain States Telephone & Telegraph Co., 132 W. Center St., soon lets contract 2 story full bsmnt. telephone bldg.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Ostruske-Murphy Co., Inc., 2907 A St., Tacoma, Wash. LB, **$239,000,** treatment plant, KENT, WASH. City, City Hall, Kent, Wash. Bids Jan. 18. CD 12/30.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Alhambra City High School District,** 601 N. Garfield Ave., Alhambra, Calif., rejected bids Jan. 11, high SCHOOL, Romona St. in San Gabriel, ALHAMBRA, CALIF., LB, **$3,269,488.** CD 1/18, under LB.

CANADA

BIDS ASKED—BUILDINGS

▲ **Alta., Calgary**—HOSPITAL WING—B.A. 3/10—Dpt. P. Wks., Hunter Bldg., Ottawa, Ont., 6 story Col. Beecher Hospital wing, $2,800,000. Plans deposit $500. V. F. R. Berton, Public Bldg., Calgary, Alta., dist. archt. owners. E. A. Gardner, c/o owner, ch. archt. CD 12/15/52

▲ **B. C., Vancouver**—POST OFFICE—B.A. 3/17—Dpt. P. Wks., Hunter Bldg., general post office bldg., $2,500,000. Plans deposit $500. E. A. Gardner, c/o owner, archt. CD 5/22/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

Atlas Constr. Co. Ltd., 4781 St. Catherine St. W., Montreal, Que., CA, **$200,000** water pumphouse for waste water separator and river water at refinery, MONTREAL, QUE. Imperial Oil Ltd., 445 Christian St. S., Sarnia, Ont

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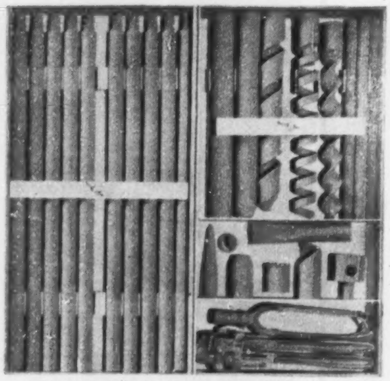

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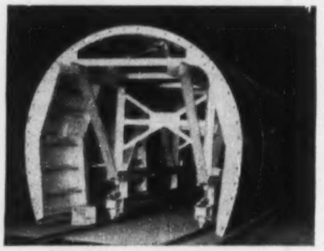

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BUILDINGS

LOW BIDS AND CONTRACTS

J. Robert Page Ltd., 221 Davenport Rd., Toronto, Ont., CA, **$635,840,** 2 story, 45,009 sq. ft., concrete, concrete block, steel, brick COLLEGIATE and VOCATIONAL INSTITUTE addn., OWEN SOUND, ONT. Owen Sound Bd. Educ., Owen Sound, Ont. Dr. P. T. Mikluchin, c/o architect, engr. John Layng, 170 Blorr St. W., Toronto, Ont. archt. Awarded Jan. 18. CD 12/11.

Basic Constr. Co. Ltd., 91 Montgomery Ave., Islington, Ont. Owner Builds, **$530,000,** two 53-suite APARTMENT BLOCKS, Jamieson Ave. south of King St. W., TORONTO, ONT.

▲ **Lakeshore Homes Ltd.**, 2171 W. Ste. Catherine St., Montreal, Que. Owner Builds, **$5,000,000,** 500 concrete, brick DWELLINGS, BEACONSFIELD. QUE.

▲ **Beacon Enterprises Ltd.**, 1010 St. Catherines St., Montreal, Que. Owner Builds, **$3,000,000,** 300 concrete, brick DWELLINGS, BEACONSFIELD, QUE.

▲ **International Constr. Inc.**, 1456 City Hall Ave., Montreal, Que. Owner Builds, Separate Contracts, **$1,050,000,** 125 one story bsmt., 25x37 ft. BUNGALOWS, LAVAL DES RAPIDES, QUE.

Adrien Demontigny, 906 St. Francis Xavier St., Three Rivers, Que., CA, **$350,000,** APARTMENT BLOCKS Ste. Cecile and St. Paul Sts., THREE RIVERS, QUE. La Societe d'Immeubles de Ste. Cecile, 664 Commissioners St., Three Rivers, Que. CD 1/20.

ALASKA

BIDS ASKED—HEAVY CONSTRUCTION

† **ALASKA**—B.A. 2/16—Alaska Road Comn., Dpt. Interior, Juneau,

160 ft. truss span on steel and wood piling over Moose River at Mile 29.3, Sterling Hy.;

replace 1,500 ft. timber deck for steel truss spans over Knik River at Mile 38.7, Glenn Hy. Plans deposit $10. W. J. Niemi, c/o owner, ch. engr.

† **Alaska, Lena Point**—POLE SETTING—Bids Asked—Alaska Communication System, Federal Office Bldg., Seattle 4, Wash., pole setting and general work, Inv. 54-15.

Proposed Projects

WATER SUPPLY

Okla., Bartlesville—City, bond election Feb. 16, WW exten. **$750,000.** Black & Veatch, 4706 Broadway, Kansas City, Mo., consult. engrs. CD 10/7.

▲ **Ont., Toronto**—Metropolitan Council of Toronto, City Hall, planning 5 trunk water mains in North York Area of metropolitan municipality, **$2,616,450** immediate construction of 24 in. water main in Roselawn Ave., **$250,000.** Leslie Allan, c/o owner, metropolitan works comr. CD 2/2/50.

SEWERS, WASTE DISPOSAL

Mich., Allen Park—Village, garbage and rubbish incinerator plant to serve Allen Park, South Dearborn Twp., Melvindale, **$720,000,** Robert H. Stellwagen, 629 Buhl Bldg., Detroit, consult. engr.

Mich., Livonia—City, garbage and rubbish incinerator plant to serve Livonia, Plymouth, Northville and Northville Twp. and Plymouth Twp., **$864,000,** Robert H. Stellwagen, 629 Buhl Bldg., Detroit, consult. engr.

▲ **Mo., Springfield**—City, City Hall, sewer imprv. program, **$6,592,340.** CD 11/2/51.

▲ **Ont., Toronto**—Scarborough Twp., 2001 Eglinton Ave. E., sewage disposal plant for Highland Creek Area, **$1,722,000.** Gore & Storrie, 1130 Bay St., consult. engrs. CD 8/28/52.

BRIDGES

▲ **Illinois and Kentucky—City of Metropolis, Metropolis,** Ill., constr. 5,260-ft. cantilever-truss toll bridge across Ohio River from Metropolis, Massac Co., Ill. to McCracken Co., Ky., **$10,000,000.** Jenkins, Merchant & Nankivil, 805 E. Miller St., Springfield, Ill., consult. engrs.

▲ **New York-New Jersey**—Port of New York Auth., 111 8th Ave., New York 11, N. Y. improved connections to George Washington Bridge. **$2,045,500.**

O., Youngstown—City, City Hall, Division St. Bridge from relocated W. Federal St. across railroad tracks near Brier Hill Works gate to eliminate tunnel at Division and Federal. **$900,000.**

▲ **Tex., Galveston**—City, Herbert Y. Cartwright, Jr., mayor, City Hall, **$6,000,000** bond election Jan. 30, causeway (incl. railway freight handling facilities) to run from Galveston Mainland to Pelican Island. CD 8/15/52.

STREETS AND ROADS

▲ **Minn., Minneapolis**—City, Mrs. A. Finkle, clk., repaving Central Ave. between 18 and 37 Aves. N.E., **$750,000;** resurf. West Broadway between Lyndale and 26 Ave. North, **$450,000;** resurf. Seventh St. between Hennepin and Park Aves., **$220,000;** H. Erickson, city engr.

▲ **Minn., Minneapolis**—City, Mrs. A. Finkle, clk., resurf. about 92 mi. streets having rails, **$2,300,000;** wid'n., c. conc.-b. conc. paving University Ave. S.E. between 10 and Central Aves., **$188,000,** H. Erickson, city engr.

▲ **NEW YORK**—Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, **Ulster Co.**—5.2 mi. arterial route from South City Line northerly along Wurts, McEntee and Broadway to East Chester St. and from North City Line southeast to Broadway, Kingston. **$2,268,000.**

O., Toledo—Comrs. Lucas Co., Court House, paving, 2.17 mi. Bowen Rd. and 2-block portions of 10 intersecting streets from Castleton Ave. to Laskey Rd. to 26 ft. wide, **$199,998;** nine streets in Mound View Subdivision of Oregon Twp. **$217,722;** Moran Ave. in Adams Twp. **$25,922;** Terminal Expressway for Oak Openings Airport near here, **$179,000;** Indian Rd. in Village of Ottawa Hills, adjacent to Toledo, **$174,272;** streets in Heather Downs Addn. **$533,200.** CD 5/11/50.

▲ **Tenn., Nashville**—City, City Hall, impvs. streets and alleys in 1954. **$1,268,345.** CD 5/13.

AIRPORTS

▲† **Mass., Weymouth**—HANGAR—First Naval Dist., 495 Summer St., Boston, hangar, Naval Air Station, South Weymouth. **$1,500,000.** Charles Maguire & Assoc., 14 Court Square, Boston, consult. engrs. CD 12/28/50.

▲ **N. J., Newark**—AIRPORT BUILDINGS—Port of New York Auth., 111 8 Ave., New York 11, N. Y., new construction and modernization existing bldgs at Newark Airport. **$2,593,700.** CD 6/6/49.

N. J., Teterboro—AIRPORT IMPRVS.—Port of New York Auth., 111 8 Ave., New York 11, N. Y. imprvs. Teterboro Airport. **$933,600.**

▲ **N. Y., Idlewild**—HANGAR, etc.—Port of New York Auth., 111 8th Ave., New York, Zone 11, addnl. hangar and other constr. at New York International Airport. **$23,648,200. CD 4/27/44.**

LATIN AMERICA

▲ **Colombia**—Government of Colombia, Bogota, has selected Gibbs & Hill, Inc., Penn Station, New York, N. Y., U.S.A. to make technical report on hydroelectric program for the country.

Mexico, Monterrey—Fundacion Medico Asistencia, Monterrey, plans 500-patient state insane asylum-TB hospital. **$500,000.**

PUBLIC BUILDINGS

▲ **Calif., Bakersfield**—HOSPITAL—Greater Bakersfield Memorial Hospital Assoc., Bakersfield, plans by Stone & Mulloy & S. P. Marraccini, 619 California St., San Francisco, 2 story, 58,000 sq. ft. rein.-con. hospital, **$1,800,000.** CD 9/23/52.

▲ **Calif., Oakland**—HOSPITAL—Alameda Co., Court House, plans by W. G. Corlett & Arthur W. Anderson, 1801 Bank of America Bldg., outpatient bldg. for Highland Hospital, 14 Ave. **$1,500,000.**

▲ **Calif., South San Francisco**—SCHOOL—South San Francisco Unified School Dist., 500 El Camino Real, South San Francisco, voted **$1,250,000** bonds, school. CD 10/28.

Conn., Middletown—FARM ADMINISTRATION—State, Ralph G. Macy, P. Wks. Comr., State Office Bldg., Hartford, plans by Caproni Associates, 1221 Chapel St., New Haven, Farm Administration Bldg., Connecticut State Hospital, **$700,000.** CD 2/7/49.

▲ **Conn., Stamford**—SCHOOL—City Bd. Educ., 151 Broad St., plans by Wm. R. Ballard, 123 E. 77 St., New York, N. Y., 1 story, brick, steel, concrete elementary school, Stillwater Ave., **$1,000,000.** Lanier & Levy, 123 E. 77 St., New York, N. Y., mech. engrs. Frailoil-Blum-Yesselman, 113 W. 42 St., New York, N. Y., structural engrs.

▲ **Ia., Iowa City**—DORMITORY, etc.—Iowa State Bd. Educ., State Capitol, Des Moines, Hillcrest Dormitory, **$875,000;** women's dormitory, **$2,900,000,** both, at University of Iowa.

▲ **Mich., Midland**—SCHOOLS—City, Bd. Educ., Midland, plans by Alden B. Dow, 315 Post St., schools, incl. high school, grade school, **$4,700,000** bonds voted Jan. 12. CD 12/29.

▲ **Minn., Minneapolis**—SCHOOLS—City, Bd. Educ., M. E. Robinson, secy., 807 Broadway N.E., Audubon Grade School, Chowen Ave. South and 41 St., **$350,000;** Henry High School addn., Morgan and 44 Aves. N., **$1,000,000;** Sanford Junior High School addn., 42 Ave. South and 36 St., **$300,000;** Washburn High School addn., Wentworth Ave. and 49 St., **$300,000;** Junior High School in northeast Minneapolis near Audubon Park, **$2,500,000;** Junior High School between 55 and 56 Sts. and between Girard and Irving Aves. S., **$2,000,000.** CD 8/7.

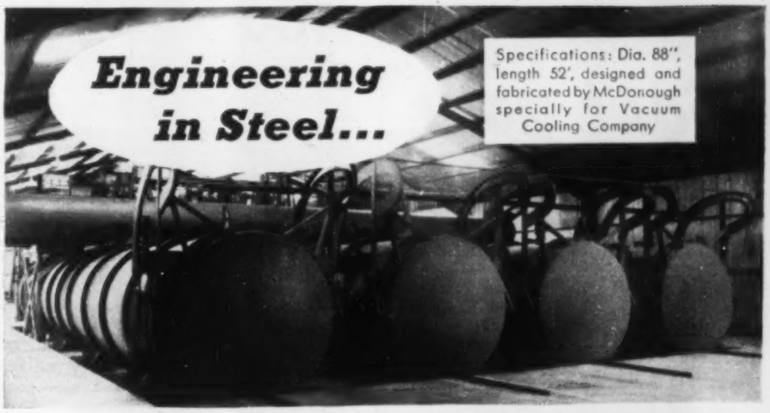
Minn., Minneapolis—THEATER—Regents of University of Minnesota, Admin. Bldg., Main Campus, plans by W. Close, 3101 E. Franklin Ave., University Theater bldg., main campus. **$775,000.**

▲ **Minn., Virginia**—HOSPITAL—City, J. G. Milroy, Jr., clk., **$1,500,000** bond election Feb. 2, municipal hospital. Damberg & Damberg, Virginia, archts.

▲ **N. J., Mount Holly**—OFFICE, etc.—Bd. Freeholders, Burlington Co., Mount Holly, plans by Petty & Croft, Moorestown, and Micklewright & Mountford, 72 Ewing St., Trenton, office and jail. **$1,000,000.** CD 6/5/50.

▲ **N. Y., New York**—BUILDING IMPRVS.—Port of New York Auth., 111 8th Ave., Zone 11, imprv. Port Authority Bldg. at site. **$2,393,800.**

O., Berea—OFFICE—Ohio Turnpike Comm., 139 E. Gay St., Columbus, plans by Stickles & Assocs., 2422 Prospect Ave., Cleveland, Turnpike administrative office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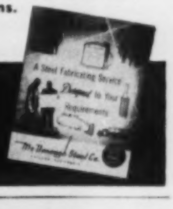

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O., Delaware—SCHOOL—Bd. Educ., Delaware, bond election May 4, grade school, North and East grade school addns., modernize West Grade and Willis High School. **$876,000.** CD 6/17.

▲ **O., Lancaster**—SCHOOL—Bd. Educ., Lancaster, bond election May 4, school expansion program, **$2,490,000.** CD 3/9.

▲ **O., Oxford**—HIGH SCHOOL—Bd. Educ., Oxford-Hanover School Dist., Oxford, high school. **$1,000,000.**

▲ **O., Toledo**—SCHOOLS—Bd. Educ. of Washington Twp., 5530 Whitmer Dr., bond election May 4, three grade schools. **$1,650,000.**

▲† **Tenn., Belfast**—SUB-STATION—Tennessee Valley Auth., New Sprankle Bldg., Knoxville, primary substation. **$1,700,000.**

▲ **Tex., Kerrville**—WARD BLDGS., etc.—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by Wyatt C. Hedrick, Box 765, Fort Worth, group of ward bldgs., **$900,000;** plans by Harvey P. Smith & Assocs., 1204 Natl. Bank Commerce Bldg., San Antonio, administrative and special services bldg., **$350,000,** at Kerrville State Home. Walter C. Moore, c/o owner, superv. archt. CD 9/25.

▲ **Tex., League City**—SCHOOLS—Clear Creek Consolidated Independent School Dist., League City, plans by George & Abel B. Pierce, 2200 Welch Ave., Houston, masonry type high school between League City and Kemah, **$800,000;** constr. admin. bldg. and group of school addns., **$350,000;** masonry type elementary school at Webster, **$350,000.**

▲ **Tex., Mexia**—ADMINISTRATION, etc.—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by Wilson & Patterson, Majestic Bldg., Fort Worth, constr. admin. bldg. and special services bldg., **$350,000;** palns by George J. Dahl, 2101 N. St. Paul St., Dallas, constr. group of ward bldgs., **$750,000,** at Mexia State School and Home. CD 9/22.

▲ **Tex., Tyler**—HOSPITAL—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by Broad & Nelson, 505 N. Ervay St., Dallas, 800-bed state tuberculosis hospital unit, **$2,000,000;** addnl. tuberculosis hospital constr. of a reconstr. program, **$3,000,000.** Walter C. Moore, c/o owner, superv. archt. CD 9/17.

▲ **Sask., Prince Albert**—DWELLINGS—Municipality City Hall, 300 dwellings, **$2,450,000.** J. Johnston, Town Hall, town engr.

COMMERCIAL BUILDINGS

Calif., Glendral—DWELLINGS—Celeste Constr. Co., 55 E. Foothill Blvd., Arcadia, plans by D. M. Carruthers, 318 N. Carvel Ave., West Covina, 80 frame, stucco dwellings in new tract. **$750,000.**

▲ **Calif., San Mateo**—MOTEL—Emerson Murfee, 110 Fallen Leaf Drive, Hillsborough, motel, on El Camino Rd., between 39 and 41 Aves. **$2,000,000.**

D. C., Wash.—HEADQUARTERS—Veterans of Foreign Wars, Wire Bldg., plans by Holabird & Root & Burgee, 180 N. Wabash St., Chicago, Ill., 5 story headquarters bldg. in 300 block of First St. N.E., to be known as National Memorial Washington Headquarters, **$750,000.**

▲ **Ill., Chicago** — MEDICAL RESEARCH — Northwestern University, 607 Clark St., Evanston, plans by Holabird, Root & Burgee, 180 N. Wabash St., Zone 1, 7 story medical research bldg., Fairbanks Court at Superior St. **$2,000,000.** CD 11/13/52.

Md., Silver Spring—OFFICE—Turover Building, Inc., c/o Charles E. Smith Co., Tower Bldg., Wash., D. C., plans by Fon J. Montgomery, 10018 Menlo Ave., 7 story office, Fenton St. and Roeder Rd. **$900,000.**

▲ **N. Y., Bayside**—HIGH SCHOOL—Brothers of Congregation of The Holy Cross, c/o Henry V. Murphy, archt., 1 Hanson Pl., Brooklyn, Zone 17, Boys High School, 29th Ave., Francis Lewis Blvd., 169 and 170 Sts. **$2,000,000.**

▲ **N. Y., New York**—APARTMENT—Bregman Bros., c/o Greenberg & Ames, archts., 303 Fourth Ave., Zone 10, 14 story apartment, W. 190 St. from Fort Washington Ave. to Cabrini Blvd. **$1,750,000.**

▲ **N. Y., New York**—APARTMENT—Syndicate, George J. Engler, pres., c/o Kahn & Jacobs, archts., 2 Park Ave., Zone 16, 19 story apartment, 74-84 Park Ave. **$5,000,000.**

▲ **O., Cincinnati**—HOMES—Glencoe Homes, Inc., Daley Rd., 450 one-family 1 and 1½ story, brick homes, Daley Rd. south of Compton Rd. **$7,200,000.**

▲ **O., Kettering**—HOUSING—C. W. Zimmerman, Inc., 2642 St. Charles St., Dayton, 150 homes on 40-acre tract south of Stroop Rd., running from Marshall Rd. to Paul Ackerman Blvd. **$2,850,000.**

▲ **O., Lyndhurst**—SHOPPING CENTER—L. C. Randall & Assocs., 5148 Mayfield Rd., Cleveland, Zone 24, plans by Weinberg & Teare, Citizens Bldg., Cleveland, Zone 15, 14-store addn. to shopping center, Richmond and Mayfield Rds., and addnl. parking facilities. **$1,000,000.**

▲ **O., University Heights**—ACTIVITIES, etc.—John Carroll University, University Heights, plans by Small, Smith & Reeb, 1010 Euclid Ave., Cleveland, Zone 14, student activities center, **$628,000;** gymnasium **$1,043,000;** enlarging service facilities, **$650,542.** CD 12/15/52.

▲ **O., Westlake**—HOME CENTER—First Catholic Ladies Slovak Union, 3675 Lee Rd., Cleveland, Zone 20, home center on 22-acre site Cahoon and Detroit Rds. **$3,000,000.**

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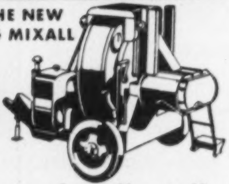

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▲ **Pa., Phila.**—MEDICAL—Albert Einstein Medical Center, Widener Bldg., plans by Abraham Levy, 1411 Walnut St., Medical (new bldgs. addns., alterations.) **$9,000,000.**

▲ **Tex., Dallas**—OFFICES—Southland Life Insurance Co., John W. Carpenter, Bd. Chn., Southland Life Bldg., Unit No. 1, 40 story bsmnt. office, **$12,500,000;** Unit No. 2, 30 story office, **$8,400,000;** Unit No. 3, office bldg., **$4,000,000;** Unit No. 4, office bldg., **$6,000,000.**

▲ **Tex., Houston**—DWELLINGS—Woodside Building Co., 2nd Natl. Bank Bldg., 16 frame, masonry dwellings, concrete slab fdn. **$358,500;** 20 one and two story, masonry dwellings, concrete slab fdn. **$390,000;** 18 masonry, frame dwellings, concrete slab fdn., **$368,000,** in an extended area of Woodside Subdivision.

▲ **Wis., Madison** — SHOPPING CENTER — Crawford Heights Corp., 114 State St., shopping center. **$1,000,000.** CD 9/24/52.

▲ **Ont., Kingston**—HOTEL, etc.—British American Hotel Ltd., Kingston, plans by Augusta Martineau, 134 Clarence St., remodeling hotel and constr. motel, **$1,000,000.**

▲ **Ont., Ottawa**—HOUSING—Ottawa Louren Housing Corp., 219 Pressland St., 102-rent 316 units housing in Overbrook Area, **$2,808,400.**

▲ **Que., Pointe Claire**—HOUSING—Bourget Constr., Inc., 307 O'Brien Blvd., Ville St. Laurent, plans by M. Legare, 279 Decarie Blvd., Ville St. Laurent, 85-unit housing development, at Cedar Park. **$1,200,000.**

INDUSTRIAL BUILDINGS

▲ **Ariz., Kingman**—PROVING GROUND, etc.—Ford Motor Co., 3000 Schaefer St., Dearborn, Mich., plans proving ground, incl. headquarters, office, garages, road system, high speed track, level test and durability roads in Mojave County, near here.

▲ **Calif., Bakersfield**—PLANT—California Portland Cement Co., Colton, plant in Kern Co., near here, **$12,000,000.**

▲ **Ill., Calumet City**—REFINERY—Prime Oil Refining Co., sub. Wood River Oil & Refining Co., Inc., 321 Douglas St., Wichita, Kan., 15,000 bbl. per day oil refinery, **$10,000,000.**

▲ **Ill., Chicago**—PLANT—Ford Motor Co., 7401 S. Cicero Ave., plant addn. **$10,000,000.** CD 2/27/51.

▲ **La., New Orleans**—PLANT—American Cyanamid Co., 30 Rockefeller Plaza, New York, N. Y., doubling capacity of anhydrous ammonia plant, Fortier, near here. **$25,000,000.**

▲ **Me., Yarmouth**—POWER PLANT—Central Maine Power Co., 9 Green St., Augusta, 90,000 KW steam power plant, Birch Point-Cousins Island, **$19,000,000,** Jackson & Moreland, 31 James Ave., Boston 16, Mass., consult. engrs. CD 1/6.

▲ **Mo., St. Louis**—MANUFACTURING and OFFICE—Thompson Products, Inc., 23555 Euclid Ave., Cleveland 17, O., 1 story mfg. bldg., 2 story office, total 200,000 sq. ft. on 56 acre site, Manchester Rd. near Weidman Rd. for Ramsey Corp. subsidiary, **$2,235,000,** A. T. Colwell, vice pres., eng., c/o owner.

▲ **O., Euclid**—RESEARCH CENTER—Thompson Products, Inc., 23555 Euclid Ave., Cleveland, Zone 17, research center, 3 story approx. 130,000 sq. ft. admin. bldg. with four wings. **$5,000,000.** A. T. Colwell, vice pres., eng., c/o owner.

▲ **Tex., Daingerfield**—PLANT—R. C. McLLwee, c/o Chamber of Commerce, Daingerfield, chemical plant and fertilizer plant. **$3,500,000.** R. W. Booker & Assocs., 1722 Olive St., St. Louis, Mo., site surveyors, etc.

▲ **Tex., Garland**—DISTRIBUTION CENTERS—Safeway Stores, Inc., 4929 Beeman St., Dallas, masonry distribution centers, Unit No. 1, **$1,000,000;** Unit No. 2, **$1,250,000.** Unit No. 3, **$500,000.**

▲ **Tex., San Marcos**—MILL—Cone Mills Corp., Greensboro, N. C., approx. 350,000 sq. ft. masonry (denim mill) Textile Mill, **$9,000,000;** repair shop, **$100,000;** earthwork, grading, levees, ditching, levelling, filling, etc. **$70,000.** CD 1/13.

▲ **N. S., Halifax**—OIL REFINERY—Imperial Oil Ltd., 56 Church St., Toronto, Ont., oil refinery to replace existing plant, **$25,000,000.**

UNCLASSIFIED

▲ **Louisiana, Mississippi, Tennessee, Texas**—PIPE MAIN—Tennessee Gas Transmission Co., Commerce Bldg., Houston, Tex., 574 mi. 30 in. pipe main running from Kinder, La. to near Portland, Tenn., **$38,220,000;** compressor stations enlargement, 3,200-h.p. East Bernard, Tex. **$285,000;** 4,800 h.p. Cleveland, Tex., **$425,000;** 1,600 h.p. Jasper, Tex. **$150,000;** 1,320 h.p. Station 71, Middleton, Tenn., **$125,000;** 4,800 h.p. Natchitoches, La. **$425,000.** CD 8/21/47.

▲ **Michigan**—RURAL DISTRIBUTION LINES, etc.—Alger-Delta Co-operative Electric Assoc., 426 N. 9 Sts., Gladstone, 15,000 kw steam generating plant ($4,360,000) 385 mi. rural distr. lines, 92 mi. 34.5 KV transmission line, sys. imprvs., in Alger, Delta, Schoolcraft, Menominee and Marquette Counties, Total est. **$8,250,000.**

▲ **Michigan**—GAS MAIN—Consumers Power Co., 212 Michigan Ave. W., Jackson, constr. 84 mi. gas main, repair 100 mi., constr. 4 gas regulator stations, 9 mi. 12 in. steel pipe line from Adams Rd. to Coolidge Hy., expanding electric distr. facilities, new equip., Oakland Co. **$5,000,000.**

Nebraska—RURAL DISTRIBUTION LINES—Southern Nebraska Rural Public Power Dist., Grand Island, 176 mi. rural distr. lines, 204 irrigation pumps, 19 mi. transmission lines and 14 mi. of tie line, Hall Co. **$735,000.** Raymond H. Reed & Co., Columbus, consult. engr. CD 1/9/50.

▲ **N. J., Port Newark**—FIRE PROTECTIVE WATER SYSTEM—Port of New York Auth., 111 8 Ave., New York 11, N. Y. modern fire protective water system and other imprvs. **$2,444,300.**

▲ **New York-New Jersey**—HOLLAND TUNNEL—Port of New York Auth., 111 8th Ave., New York 11, N. Y. improved connections and other changes at Holland Tunnel. **$2,386,500.**

▲ **New York-New Jersey**—LINCOLN TUNNEL—Port of New York Auth., 111 8th Ave., New York 11, N. Y. addnl. constr. on Third Tube of Lincoln Tunnel. **$37,537,800.** CD 3/12/51.

North Carolina—RURAL DISTRIBUTION LINES—Rutherford Electric Membership Corp., Forest City, 175 mi. electric distr. line and sys. imprvs., Rutherford Co. **$800,000.**

† **Pa., Johnsville**—INDOOR FIRING RANGE, etc.—Dpt. Navy, Phila. Naval Base, Phila., plans by Pierce Management and Von Storch, Evans, Scandale & Burkavage, Waverly, indoor firing range and turret assessment facility, Naval Air Development Center. **$3,000,000.**

▲ **Texas**—OIL PIPE LINE—Magnolia Pipe Line Co., Magnolia Bldg., Dallas, 208 mi. 20 in. welded joint crude oil pipe line, Corsicana to Beaumont, **$9,960,000;** constr. tank farm, six 122,500 bbl. each capacity, steel type, at Beaumont, **$550,000;** two 120,000 bbl. each steel tank farm, Corsicana, **$150,000;** crude oil pumping station, Corsicana, **$250,000;** crude oil pumping station, Livingston, **$200,000.**

Tex., Houston—TELEVISION STATION—Houston Consolidated Television Co., c/o Roy Hoffheinz, City Hall, television station (Channel 13). **$750,000.**

▲† **Wash., Bremerton**—DRYDOCK—Dpt. Navy, Thirteenth Naval Dist., 1611 W. Wheeler St., Seattle, 1,100 ft. Drydock No. 6, Puget Sound Naval Shipyard. **$20,000,000.**

Ontario—GAS PIPE LINE—Union Gas Co. of Canada Ltd., 48 Fifth Ave., Chatham, gas pipe line from Dawn to Oakville, **$500,000.**

▲ **Ont., Sarnia**—PIPE LINE—Imperial Oil Ltd., 56 Church St., Toronto, Sarnia Products Pipe Line expansion to increase line carrying capacity 40%, **$1,000,000.**

▲ **Que, Contrecoeur**—DOCK—Iron Ore Co. of Canada, 810 Cote des Liesse Rd., Montreal, "Montreal Transfer Dock," (2 faces one for ore boats and one for smaller canal boats and dredging) unloading machinery, conveyor systems, etc. **$5,000,000.** C. D. Howe Co. Ltd., 1421 Atwater Ave., Montreal, consult. engrs.

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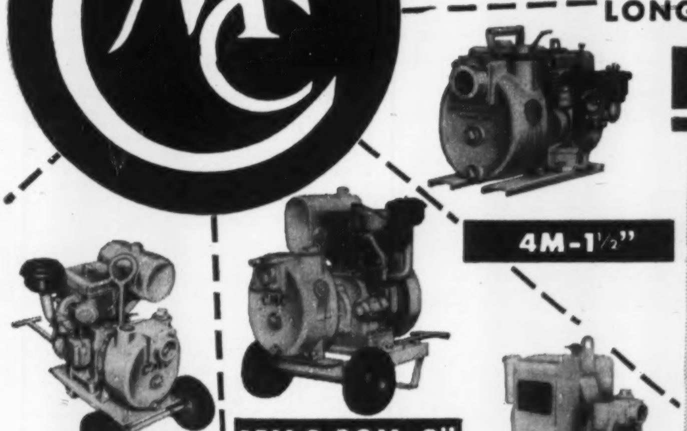

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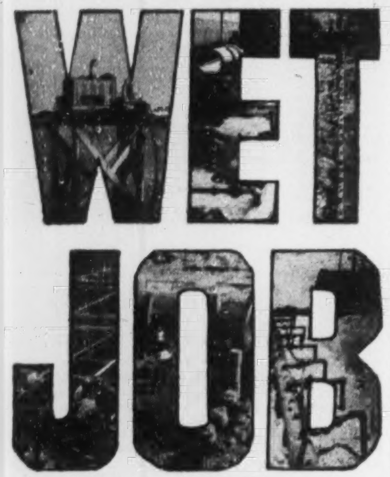

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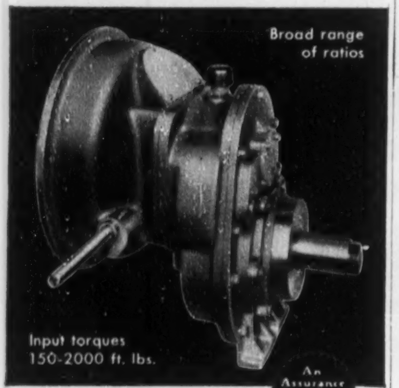
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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
STREETS AND ROADS
February 23 Massachusetts

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **J. R. Cianchette,** 29 Hunnewell Ave., Pittsfield, Me. LB **$1,017,902,** Alt. LB **$976,837,** est. $1,000,000. constr. aprons, Dow Air Force Base, Eng-19-016-54-55, BANGOR, ME. U. S. Eng., 857 Commonwealth Ave., Boston, Mass. Bids Jan. 22. CD 1/5.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 9, 16 Maryland
STREETS AND ROADS
February 9 Maryland February 17 Delaware

BIDS ASKED—BUILDINGS

▲ **Pa., Oxford**—SCHOOL—B.A. 2/15—Oxford Area School Auth., Oxford, general constr., heating, plumbing, electrical work for school and altering present high school. $1,000,000. Plans deposit $15. Buchart Eng. Corp., 611 W. Market St., York, engrs.-archts. CD 3/11/52.

▲ **D. C., Wash.**—SCHOOL—B.A. 2/19—D. C. Govt., Director of Bldgs. & Grounds, 499 Pa. Ave. N.W., elementary school, E. Capitol St. and 55 St. S.E. $1,060,000. Plans deposit $25. CD 5/13/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Carl Buhr, Inc.,** Grand Central Terminal Bldg., New York 17, N. Y., CA **$1,829,092,** maintenance hangar, admin. and training bldg., etc. at Air Force Base, Serial No. Eng-30-075-54-130, NIAGARA FALLS, N. Y. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids Jan. 12. CD 1/5.

▲ **PENNSYLVANIA**—State Hy. Dpt., North Office Bldg., Harrisburg, Pa.

New Enterprise Stone & Lime Co., Inc., New Enterprise, Pa., LB, **$239,861,** crushed aggreg. base with bit. 5,203 ft. and four I-beam bridges, T.R. 26, Hopewell Twp. Bedford Co.; Lb **$428,552,** crushed aggreg. base with bit. 29,235 ft. T.R. 31, Somerset, Stony Creek & Brothers Valley Twps., Somerset Boro, Somerset Co.;

Allegrany Asphalt & Paving Co., Inc., 801 Bingham St. Pittsburgh, 3, Pa., LB, **$623,965,** wid'n. 34,632 ft. road, surf., existing base with bit. T.R. 422, Cherryhill and Pine Twps., Indiana Co.;

Burrell Constr. & Supply Co., 1 Fifth St., New Kensington, Pa., LB, **$135,721,** wid'n. left and right 14,622 ft. road Carroll Twp., Washington Co.;

W. L. Dunn Constr. Co., Cochranton, Pa., LB, **$101,274** wid'n. and overlay 10,847 ft. road T.R. 99, Cambridge Springs Boro, Cambridge Twp., Crawford Co.;

The Kelley & Meyer Co., 1211 Gibson St., Youngstown, O., LB, **$100,299,** surf. 30,667 ft., existing road T.R. 58, 62, 158, Pine, Findley, Hickory & E. Lackawannock Twps., Grove City and Mercer Boros, Mercer Co.;

Mayer Bros. Constr. Co., 1227 W. 18 St., Erie, Pa., LB, **$60,461,** wid'n. 7,424 ft. road T.R. 89, North East Boro, North East Twp., Erie Co.;

Richard Constr. Co., R. D. 2, Canonsburg, Pa., LB, **$395,926** overlay and wid'n. 23,036 ft. road T.R. 88, New Brighton, Boro, Daugherty and N. Sewickley Twps., Beaver Co.;

Charles Riebe, 333 Columbia Ave., Palmerton, Pa., LB, **$352,558,** wid'n. and overlay 22,059 ft. road, T.R. 512, Bushkill and Plainfield Twps., Northampton Co.;

Rupp Brothers, Inc., Box 230, Kittanning, Pa., LB, **$102,576** wid'n. 7,540 ft. road, T.R. 453, Pike Twp., Clearfield Co.;

John H. Swanger, Inc., P.O. Box 1214, Lancaster, Pa., LB, **$1,122,147,** 21,009 lin. ft. rein. conc. road T.R. U.S. 11, Greencastle Boro, Antrim, Twp., Franklin Co. Bids Jan. 26. CD 1/6.

▲ **Brooklyn Eng. Co.,** 1110 E. 25 St., Baltimore, Md. LB **$1,493,000.** O'Donnell Street Viaduct, BALTIMORE, MD. City, Bureau Hys., 303 Municipal Bldg., Baltimore, Md. Bids Jan. 27. CD 1/15.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Birch Bay Homes,** c/o Matern & York, archts, 90-04 161 St., Jamaica, N. Y. Owner Builds. **$1,200,000.** 100 HOUSES on tract at Tiana St. and Anchor Pl., SEAFORD, N. Y.

▲† **Frederick Raff Co.,** 271 Sheldon St., Hartford, Conn., CA, **$1,992,368,** steam and power GENERATING FACILITIES, Picatinny Arsenal, DOVER, N. J. U. S. Eng., 80 Lafayette St., New York 13, N. Y. Bids Jan. 12. CD 1/5.

▲ **M. Shapiro & Son Constr. Co., Inc.,** 254 W. 54 St., New York, 19, N. Y. Owner Builds, **$2,640,000** 360-unit Pierce Manor Housing, six 5 story bldgs. on 10½ acre tract bounded by Irvington Ave., Parker Rd. and Elizabeth River, ELIZABETH, N. J. Kelly and Gruzen, 80 Fifth Ave., New York 3, N. Y., archts.

▲ **Concord Realty Co.,** 2 Pooks Hill Rd., Bethesda, Md. 220 APARTMENT units, Pooks Hill, BETHESDA, MD. John P. Fitzsimmons, 1731 New Hampshire Ave. N.W., Wash., D. C., archt. CD 6/16/52.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 9 West Virginia February 17 Louisiana
February 19 Alabama
STREETS AND ROADS
February 9 West Virginia February 17 Louisiana
February 19 Alabama

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Stone & Webster Eng. Corp.,** 1403 Roseneath Rd., Richmond, Va., CA. **$16,000,000,** STEAM GENERATING UNIT addn. at Possum Point, near QUANTICO, VA. Virginia Electric & Power Co., 7 and Franklin St., Richmond, Va. CD 9/10.

▲ **Milling Eng Co.,** 1911 Baltimore St., Kansas City, Mo., CA. Approx. **$1,500,000.** MILL, WILSON, N. C. Ralston Purina Co., 835 S. 8 St., St. Louis, Mo.

▲ **W. H. Weaver Constr. Co.,** Greensboro, N. C., CA, **$1,387,000,** 244 HOUSING UNITS, WINSTON-SALEM, N. C. Winston-Salem Housing Auth., Winston-Salem, N. C. Bids Jan. 14. CD 1/25, under LB.

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 16 Indiana, Wisconsin
STREETS AND ROADS
February 16 Wisconsin

BIDS ASKED—BUILDINGS

▲ **Mich., Dearborn**—SCHOOL—B.A. 3/3—City, Bd. Educ., 5757 Neckel Ave., 2 story, brick, steel, concrete Edsel Ford High School, $4,500,000. Plans deposit $75, refundable. Eberle M. Smith Assoc., Inc., 153 E. Elizabeth St., Detroit, Zone 1, archt. CD 4/21.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **OHIO**—State Hy. Dpt., Ohio Dpts. Bldg., Columbus, Zone 15,

V. N. Holderman & Sons, Inc., 890 Oakland Park, Columbus, O., LB **$1,791,929,** est. $2,214,000, 5.2 mi. U. S. 23, incl. continuous slab concrete bridges over branchs of Indian Creek, Ross Co.;

W. L. Harper Co., Inc., 2910 E. Highland St., Norwood, Cincinnati, O., LB **$971,869,** est. $1,003,600, 3.2 mi. U. S. 23, incl. bridges over Moore's Run and Crooked Creek in Waverly, O. and Pike Co.;

Charleston Constr. Co., 1599½ Washington St., Charleston, W. Va. LB **$1,132,725,** est. $1,123,600, 4.4 mi. U. S. 23, incl. two bridges over Crooked Creek, Pike and Ross Counties;

W. M. Brode, Inc., 100 Elizabeth St., Newcomerstown, O., LB **$894,545,** est. $964,800, 2 mi. Ohio 124, incl. bridges over Scioto River and Scioto River overflow, Pike Co.;

Middle States Bituminous Corp., 15th and Front Sts., Ashland, Ky., LB **$696,677,** est. $856,000, 6.8 mi. Ohio 124 and incl. bridges of Four Mile Creek and Buck Hollow, Pike Co. and Village over Beaver.

Asphalt Paving Corp., 823 Prospect St., Portsmouth, O. LB **$219,712.** est. $305,850, 1 mi. U.S. 23, Scioto Co. Bids Jan. 22. CD 1/11.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Welso Constr. Co.,** 2448 Fletcher St., Chicago, Ill., CA, **$1,500,000,** RESEARCH LABORATORY, CHICAGO, ILL. Michael Reese Research Foundation, 29 and Ellis Sts., Chicago, Ill. Bids Oct. 30, awarded Jan. 25. CD 10/21.

▲ **A. Ranieri,** 9132 Lehigh Ave., Morton Grove, Ill., Own Forces, **$1,500,000.** 100 HOMES north of MORTON GROVE, ILL. A. J. Del Bianco, 5501 Irving Park Rd., Chicago, Ill., archt.

▲ **Ragner Benson, Inc.,** 4744 W. Rice St., Chicago 51, Ill., CA, **$1,500,000,** 2 story LABORATORY, NILES, ILL. A. B. Dick Co., 5700 Touhy Ave., Niles, Ill. Victor L. Charn, 4744 W. Rice St., Chicago 51, Ill., archt. Awarded Jan. 7. CD 12/30.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
February 9 Iowa February 16, 17 Texas
STREETS AND ROADS
February 9 Iowa February 16, 17 Texas

BIDS ASKED—BUILDINGS

▲ **Kan., Wichita**—SPORTS ARENA—B.A. 2/25—University of Wichita, 1845 Fairmount St., sports arena, $1,670,000. Schmidt, **McVay & Peddie**, 1832 E. 2 St., archts. CD 2/10.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Northern States Power Co.**, 15 South Fifth St., Minneapolis, Minn. Own Forces. **$4,000,000.** furnish, lay 85 mi. gas mains in St. Paul and environs, MINNESOTA.

▲† **Societa Anonima Electrificazione**, Milan, Italy, LB, **$2,057,733**, galvanized steel double-circuit towers for Big Bend-Granite Falls 230-kv transmission line, Missouri River Basin Proj., Spec. DS 4086, SOUTH DAKOTA. Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver Federal Center, Denver, Colo. Bids Jan. 19. CD 12/1.

▲ **M. K. Eby Constr. Co.**, 610 N. Main St., Wichita, Kan. LB **$1,513,000.** sewage plant imprvs., WICHITA, KAN. City, Wichita, Kan. Bids Jan. 12. CD 1/7.

▲† **Hagstrom Constr. Co.**, 1567 Selby Ave., St. Paul, Minn. LB **$1,549,238**, est $1249,418. 76-bed hospital and dental clinic at Great Falls Air Force Base, Inv. 54-80, GREAT FALLS, MONT. U. S. Eng., 4735 E. Marginal Way, Seattle 4, Wash. CD 1/25, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Northern States Power Co.**, E. K. Thorgaard, vice pres., A. S. Keely, constr. supt., 15 S. Fifth St., Minneapolis, Minn. Own Forces. **$1,200,000.** SUBSTATION, MINNEAPOLIS, MINN. CD 1/27.

▲ **Koch Eng. Co., Inc.**, 321 W. Douglas St., Wichita, Kan., CA. crude unit to increase REFINERY capacity from 9,000 bbls. to 15,000 bbls. per day; Fluor Corp., 2500 Atlantic St., Los Angeles, Calif., engr.;

Refinery Eng. Co., Wright Bldg., Tulsa, Okla., CA 6,000 bbl. per day fluid-type CATALYTIC CRACKING UNIT and CATALYTIC POLYMERIZATION UNIT, Universal Oil Products Co., 310 S. Michigan St., Chicago, Ill., engrs., WYNNEWOOD, OKLA. Kerr-McGee Oil Industries, Inc., Kerr-McGee Bldg., Oklahoma City, Okla. Total est. **$4,500,000.** CD 2/5.

▲ **James Stewart Constr. Co.**, 305 Employers Insurance Bldg., Dallas, Tex. CA **$1,351,445.** COURT HOUSE, TYLER TEX. Smith Co., Court House, Tyler, Tex. CD 1/28, under LB.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS

BRIDGES

February 17, 24 California

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Hirsh-Edmunds Bldg. Co.**, 246 S. Robertson Blvd., Beverly Hills, Calif. Owner Builds. **$1,180,000.** 118 DWELLINGS, in Tract 19033, INGLEWOOD, CALIF.

▲ **Guy F. Atkinson Co.**, 10 West Orange St., South San Francisco, Calif. LB, **$2,528,493**, new wing for Community HOSPITAL, REDWOOD CITY, CALIF. San Mateo Co., Court House, Redwood City, Calif. Bids Jan. 19. CD 12/2.

▲ **Crown Constr. Co.**, 1231 S. La Brea St., Los Angeles, Calif., LB, **$1,116,000** Pueblo Del Rio HOUSING exten., Part 2, incl. 140-dwelling units, CAL 4-15, 53 St., 55 St. and Long Beach Ave., LOS ANGELES, CALIF. Housing Auth. of City of Los Angeles, 1401 East First St., Los Angeles, Calif. Bids Jan. 26. CD 12/23.

CANADA

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **E. Brunet & Son**, 9 Dumas St., Hull, Que., CA, **$4,000,000** 8 story, 280-bed, concrete, steel brick HOSPITAL, HULL, QUE. Reverend Sisters of Charity of Providence, 1431 Fullman St., Montreal, Que. L. Sarra-Bournet, 189 Principal St., Hull, Que., archt. CD 4/14/52.

AMERICANS ABROAD

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Societe Houilleres-Pechiney-Progil**, France, Owner Builds. styrene monomer PLANT, MAZINGARBE, FRANCE. Societe Belge de L' Azote et des Produits Chimiques du Marley, S.A. of Belgium, engrs. Koppers Co., Koppers Bldg., Pittsburgh 19, Pa. Engineering & Construction Div., will furnish assistance in enginering and field work and the Chemical Div. will give technical assistance.

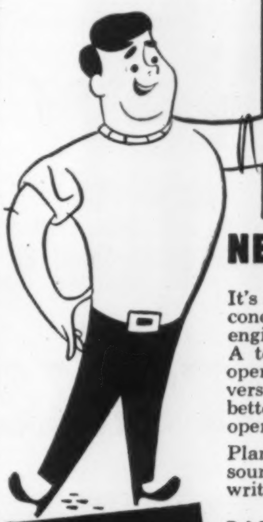
LATIN AMERICA

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Enrique Yanez**, Emparan, 35, Mexico City, Mexico, CA, **$7,000,000**, 2,750-bed, 11-unit general HOSPITAL, MEXICO CITY, MEXICO. Sria. de Salubridad y asistencia, Mexico City, Mexico. Awarded Jan. 25. CD 1/13.

(Proposal Advertisements see pp. 74 and 75)



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V-9

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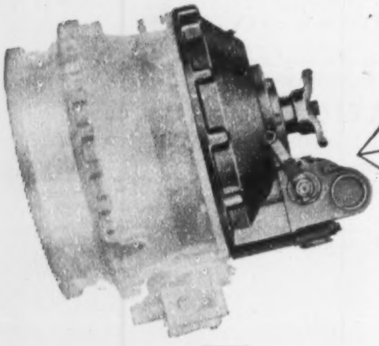

**Speeds job-cycle time—
cuts maintenance costs—no wearing parts
cuts service brake lining wear**

ALLISON'S *new* TORQMATIC BRAKE brings faster, safer downhill hauling to heavy-duty trucks. On-the-job tests prove that in many cases drivers can more than *double* present downhill speeds with complete safety. This new dynamic brake speeds job-cycle time for more trips per shift—more pay loads per day.

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This revolutionary new TORQMATIC BRAKE increased round trips 50% per day on year-long tests. Trucks safely came down a 10% grade with a 34-ton load at 12 miles per hour compared to 6 m.p.h. for trucks with friction brakes only. With the TORQMATIC BRAKE, the regular service brake linings lasted from 6 to 8 months —without it they required monthly replacement.

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There are no active braking parts to burn up or wear out in the TORQMATIC BRAKE. Drivers have complete control at all times—can brake continuously even going down the steepest grades with the heaviest loads. Trucks never "run away" from the driver. The truck's own rolling force produces the braking power needed, to the limit of the driveline components' strength.

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Oil does all the braking work—absorbs all the braking force. The new TORQMATIC BRAKE takes over from friction brakes on downhill hauls, saves regular service brakes for complete stops or "snubbing" on curves. It's

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Allison

the *first* downhill braking unit designed and installed as an integral part of the truck's driveline. It bolts directly on the TORQMATIC Converter housing—adds only 4 inches to the converter's length. The brake and converter use the same oil. There are no freezing problems in winter. The TORQMATIC BRAKE can be specified in new trucks equipped with Allison TORQMATIC DRIVES.

If you're hauling on hilly, mountainous downhill runs, you can cut costs and increase production with Allison's new TORQMATIC BRAKE. For full details, contact your truck manufacturer or write for Bulletin SA 1026 to:

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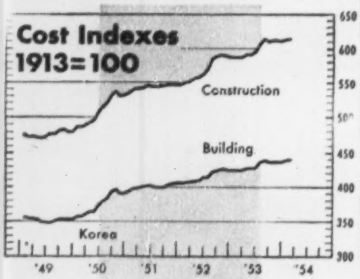
ALLISON'S NEW TORQMATIC BRAKE, attached directly to the TORQMATIC Converter, has three major parts — a turning rotor (or "paddle wheel") attached to the torque converter; non-moving or fixed stator vanes cast into the brake housing; and a control valve.

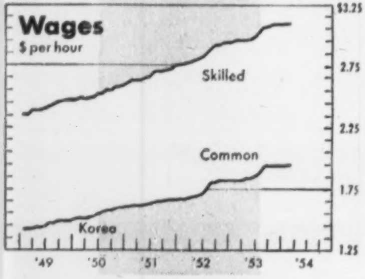
Here's How it Works: To brake a truck going downhill, the driver pulls the handy control lever to let oil into the brake. The truck's wheels turn the rotor or "paddle wheel" through the truck's transmission. The rotor throws the oil against the stator vanes which resist the oil flow. This makes it harder for the rotor to turn and correspondingly makes it harder for the truck's wheels to turn. The driver gets more braking by letting more oil into the brake. He reduces braking by reducing the amount of oil in the brake. The new brake provides up to 400 h.p. of continuous braking effort.

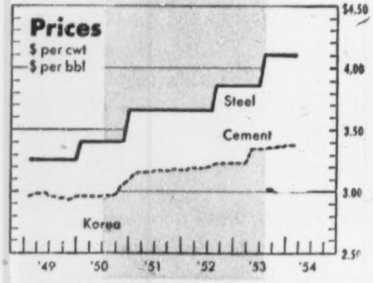
TORQMATIC BRAKE

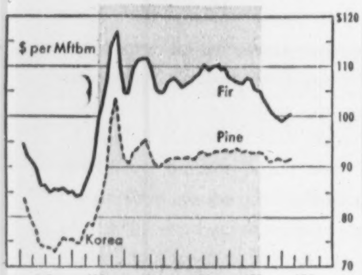
NEWEST MEMBER OF THE TORQMATIC DRIVELINE

FEBRUARY CONSTRUCTION SCOREBOARD









ENR INDEXES (1913=100), 20-cities' average	1954 Feb.	% Change from last Month	% Change from last Year
Construction Cost	614.71	+ 0.1	+ 4.6
Building Cost	437.55	+ 0.2	+ 2.9

WAGE-RATES, 20-cities' average			
Common	$1.944	0.0	+ 6.8
Skilled (aver. 3 trades)	3.095	0.0	+ 5.1
Bricklayers	3.364	0.0	+ 2.7
Structural Ironworkers	3.065	0.0	+ 6.8
Carpenters	2.855	0.0	+ 6.1

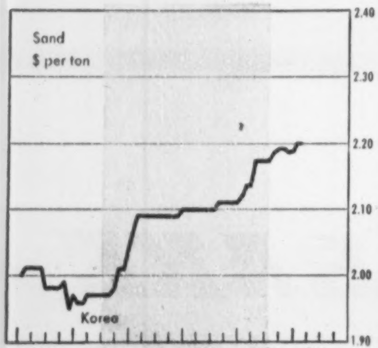
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl	$3.377	0.0	+ 4.8
Structural Steel, (3-mill aver.), per cwt	4.100	0.0	+ 6.5
Sand, per ton	2.202	0.0	+ 3.2
Lumber, 2x4 Fir, per M. ft. bm	100.292	+ 0.5	− 6.2
Lumber, 2x4 Pine, per M. ft. bm	91.517	+ 0.5	− 2.1
Common brick, per M	32.936	+0.07	+ 4.2
Ready-mixed concrete, per c. y	11.979	0.0	+ 5.2
Structural Clay Tile, 3x12x12 per M	160.094	+ 0.2	+ 3.0

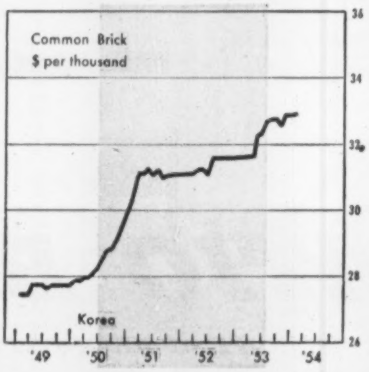
CONTRACTS AWARDED (Millions)	1954 Jan. (4-Weeks)	1953 12-Mos. (53-Weeks)	% Change from Jan. '53 (5-Weeks)	% Change from 12-Mos. '52 (52-Weeks)
Total U. S. (ENR reported)	$766.3	$15,170.9	−49.2	− 5.1
Private	350.3	8,665.3	−62.8	+19.5
Public	416.0	6,505.6	−26.6	−25.6
Federal	81.1	1,417.6	−55.7	−69.2
ENR Volume Index, '13=100	338	506	−52.7	−12.3

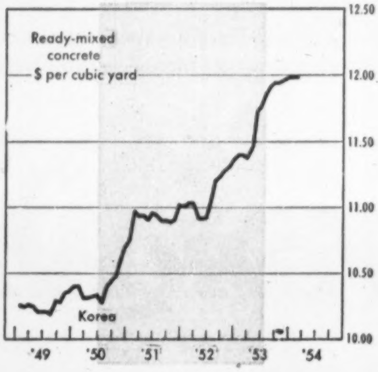
NEW CAPITAL (Millions)				
Total	461,129	11,820.3	−20.3	−25.2
State & Municipal Bond Sales	194,541	5,031.1	−27.9	+43.6
Corporate Security Sales	253,268	4,308.7	−14.2	+18.2
Federal (non-federal work)	13,320	884.9	+ 1.4	− 2.9
Federal (federal work)	....	1,595.6	......	−79.4

MATERIAL SHIPMENTS & LABOR SUPPLIES (Millions)	1953 Nov. (N) Dec. (D)	1953 11-Mos. 12-Mos.	% Change from '52 Mo.	% Change from '52 Yr.-Cum.
Cement bbls, Bu. of Mines	19.495(N)	246.743(11)	− 1.4	+ 3.9
Fabr. Struc. Steel, tons AISC	.267(D)	3.118(12)	+18.7	+17.0
Lumber, mil. ft. bm., NLMA	2.869(N)	35.427(11)	− 6.8	+ 1.7
Lumber Prod., mil. ft. bm., NLMA	3.075(N)	36.218(11)	......	+ 3.6
Contract Constrc. Employ., BLS	2.481(D)	2.538(12)†	− 0.6	− 1.3

† Average







BUSINESS AND FINANCE

January contract awards start 1954 in low gear

After a big December, heavy construction contract awards started off 1954 in low gear. Total awards reported to Engineering News-Record and the Construction Daily totaled $766 million. That is far under last year, and the smallest January volume since 1949. In January 1953, volume was $1,887 million. Last month, it was $1,511 million.

Weekly contract volume was off 49% from January 1953. That's the only fair basis for comparison, since this January had four weeks while January of last year had five. Compared with December 1953, weekly volume was down 37%.

This doesn't mean that a recession has hit the construction business. There are several reassuring reasons for this decline. For one thing, rugged weather this January, compared with "open weather" in the other two months, probably played some part in decisions as to when to let contracts.

Tying in with the weather situation is the fact that, on a regional basis, the big declines in contract volume this January compared with a year ago were in the South and West. Volume in the South declined 57%. In the Midwest region, volume dropped 67%, in the West-of-Mississippi area it was off 50%, and in the Far West it dropped 46%.

- **Controls**—Also, at this time last year many projects which had been held up by government controls got a green light. That is certainly one major reason why contract volume for January 1953, set a record for the month, besides being the biggest month for contract volume during all 1953.

Still another factor, always to be considered in the contract award series, is that both January and December of 1953 had two unusually large awards. Two awards alone in January 1953, accounted for $480 million, about 25% of total volume. In December, two awards totaled for about the same percentage.

- **Awards decline**—State and municipal awards averaged about $84 million per week, off 3% from January 1953. Much sharper declines occurred in federal work, which was down 56%, and in private work, which was down 63%. All types of work were behind a year ago on the basis of average weekly volume, except for commercial building (up 20%) and highways (up 13%). This continues an uptrend for commercial work. The biggest percentage declines were in industrial building (off 80%), private mass housing (down 57%), private unclassified (down 72%), and public housing (down 72%). Almost every other type of work also reported large percentage declines. The smallest drop was 4%, in the relatively small waterworks category.

Cost indexes up slightly; reach new record highs

Construction costs edged up a little more for February, as lumber price boosts in five cities offset price reductions in two others. The ENR Construction Cost Index for February is 614.71, based on 1913 = 100. That's a 0.1% increase over January and a new high.

During the last 12 months, the index has gone up 4.6%.

The Building Cost Index for February also reached a new high. It is now 437.55, also based on 1913. It is up 0.2% above the previous month, and 2.9% above a year ago.

This is the second successive month in which lumber prices have gone up, after a pretty continuous decline which started last May. The ENR 20-city average for Douglas fir and Southern pine 2x4s is now about 1% higher than the low reached in December.

All other elements in the index—cement, structural steel, and wages—remained stable this month.

(B&F continued on page 72)

ENGINEERING CONSTRUCTION CONTRACTS—JANUARY, 1954

Engineering News-Record *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation, $34,000; other public works, $60,000; industrial buildings, $82,006; other buildings, $300,000*

Four Weeks—Thousands of Dollars (000 Omitted)

	January 1954						Total U. S. January		%	Canada
	New England	Middle Atlantic	South	Mid West	West of Mississippi	Far West	1954 (4 weeks)	1953 (5 weeks)	Change '53 to '54 Avg Wk	January 1954
Public Works										
Waterworks	137	719	2,490	3,589	7,168	967	**15,070**	19,531	– 4	1,381
Sewerage	271	4,836	1,683	5,225	6,085	2,534	**20,634**	49,285	–48	309
Bridges	3,789	10,738	4,294	1,154	7,525	226	**27,726**	54,348	–36	.....
Earthwork and drainage	280	256	1,553	526	2,185	22,952	**27,752**	53,411	–35	1,938
Streets and roads	5,172	25,707	11,881	41,193	16,050	5,080	**105,083**	116,368	+13	1,837
Public buildings, residential	2,596	10,246	485	1,501	....	5,879	**20,707**	90,681	–72	398
Other public buildings	11,617	30,085	16,684	27,186	20,770	22,585	**128,927**	212,743	–24	6,713
Unclassified	1,476	39,667	15,201	337	7,693	5,722	**70,096**	112,625	–22	1,189
Total public	**25,338**	**122,254**	**54,271**	**80,711**	**67,476**	**65,945**	**415,995**	**708,992**	**–27**	**13,765**
Federal government (included in above classifications)	**1,636**	**22,799**	**13,788**	**1,118**	15,273	26,490	**81,104**	228,930	–56	4,145
Private										
Bridges	....	....	....	....	....	....	....	....	....	....
Industrial buildings	3,597	22,693	7,439	14,741	22,758	13,108	**84,336**	531,275	–80	9,714
Mass housing	5,070	43,950	19,376	72,138	25,814	8,235	**174,583**	510,866	–57	41,216
Commercial buildings	2,339	33,850	8,560	28,180	5,071	1,627	**79,627**	83,119	+20	5,469
Unclassified	....	200	1,350	1,450	8,717	62	**11,779**	52,268	–72	5,735
Total private	**11,006**	**100,693**	**36,725**	**116,509**	**62,360**	**23,032**	**350,325**	**1,177,528**	**–63**	**62,134**
Total Engineering Construction:										
January, 1954—4 weeks	**36,344**	**222,947**	**90,996**	**197,220**	**129,836**	**88,977**	**766,320**	....	**–49**	**75,899**
December, 1953—5 weeks	61,498	351,172	117,248	339,018	544,823	97,162	**1,510,921**	....	....	92,490
January, 1953—5 weeks	44,541	311,117	266,836	736,977	321,847	205,202	....	1,886,520	....	104,176
% Change '53 to '54 (Avg. Wk.)	+2	–10	–57	–67	–50	–46	....	....	....	–9

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Projector dimensions — 14½" wide — 11½" deep — 26" high

Dia. of Reflector	14"
Center of Refl. above ground—short stand	18"
Center of Refl. above ground—tripod stand	8' max. 5' min.
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Weight of short stand	5 lbs.
Weight of tripod stand	34 lbs.
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Fanny Mae: Its future is clearer

President's messages give some details on plan to get U.S. further out of the mortgage business

The future of the Federal National Mortgage Assn. has become clearer in the last two weeks, now that President Eisenhower has delivered his housing message and his economic report to Congress.

In a sense, the Administration's proposal represents a victory for Richard G. Hughes, newly elected president of the National Home Builders Assn. As a member of the President's advisory committee on housing, Hughes handed in a minority recommendation on Fanny Mae that differed considerably from and was sharply critical of the majority recommendation. The President adopted many of his suggestions. However, in another sense the President's proposal is a defeat for Hughes, because (depending on how it is administered) it would take the federal government further out of the mortgage business.

• New FNMA—Here's how Fanny Mae would shape up, if the President's proposal is accepted by Congress:

First, it would continue in existence, as Hughes suggested, instead of being replaced by a privately financed National Mortgage Marketing Corp. As it has been doing in the past few months, FNMA would continue to liquidate its present mortgage portfolio in "an orderly manner" and return these funds to the Treasury. It would issue no more advance commitments, but would provide temporary market support.

Second, its capital funds (which apparently will be $50 million) would be initially provided by the federal government, to be eventually replaced by involuntary contributions from users of Fanny Mae.

The purpose of this is not only to provide capital, but to discourage use of Fanny Mae as a permanent dumping-ground for relatively undesirable mortgages. Its function, the President stated, is to buy mortgages "at market rates in areas where investment funds are scarce, for resale in areas where there is a surplus of funds." He did not mention a further possible function: temporary purchase of VA and FHA mortgages at times when the regular mortgage lenders are temporarily out of the market.

• Penalty rates—Just what the "penalty rate" will be isn't known yet. The majority report of the advisory housing group suggested 4% of the unpaid balance of the mortgages which the original mortgage lender has resold to Fanny Mae. Hughes suggested a rate of 2%.

As the majority report suggested, Fanny Mae will offer debentures to the market to raise additional funds.

But, as Hughes suggested, the government will lend its support where certain types of mortgages are concerned. Fanny Mae can still draw on its uncommitted authorized Treasury funds—of which it has about $360 million left—to provide market support for "certain kinds and types of insured and guaranteed mortgages when the President determines such action to be necessary in the public interest."

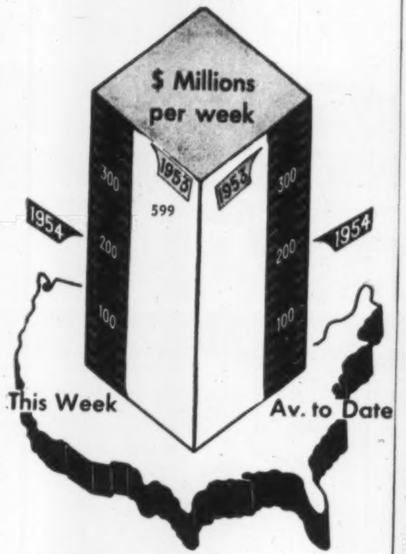
• Government support—Presumably that would not only include support for Wherry Act, defense and disaster housing mortgages, but would include private mortgages financing urban redevelopment and rehabilitation, and the proposed long-term mortgages on low-cost, privately owned housing. The President's housing message promised that such support would be closely controlled. But it represents a potential method for pumping credit into the entire VA and FHA mortgage market, if the Administration thought it necessary.

The Administration also plans to make rates on government-guaranteed mortgages flexible, so that they could not get very much out of line with rates on other mortgages and on long-term bonds. That was essential if Fanny Mae were to return to its role as a temporary holder of mortgages. Otherwise, rates on VA and FHA mortgages could get so far below conventional mortgages that lenders would resell the VA and FHA paper to Fanny Mae and leave it there. Furthermore, flexible rates were essential if Fanny Mae were to sell debentures in the bond market.

Under the Administration proposal to Congress, the President would have power to make adjustments "within appropriate statutory limits" to interest rates. Furthermore, he would be permitted to change loan-to-value ratios and maturities. This latter authority would give him additional power to support the level of home building, if necessary.

Activity This Week

As reported to ENR
(in millions of dollars)



Amount of contracts let

	This Week	Cumulative 5 wks 1954	Cumulative 5 wks 1953	% chge
Federal	$15.3	$96.4	$228.9	−58
State and municipal ..	63.0	397.9	480.1	−17
Total pub...	78.3	494.3	709.0	−30
Total priv...	116.0	466.3	1,177.5	−60
U. S. total..	**$194.3**	**$960.6**	**$1,886.5**	**−49**

Contracts by type of work

Waterworks .	$2.4	$17.5	$19.5	−10
Sewerage ...	4.8	25.4	49.2	−48
Bridges	5.8	33.4	54.3	−38
Highways ..	25.3	130.3	116.4	+12
Earthwork, waterways .	2.5	30.3	53.5	−43
Buildings:				
Public, excl. hsg.	24.8	154.1	212.7	−28
Housg., pub.	2.7	23.4	90.6	−74
Housg., priv.	58.2	232.7	511.0	−54
Commercial	6.1	85.7	83.1	+3
Industrial..	44.1	128.4	531.3	−76
Unclassified.	17.6	99.4	164.9	−40
Total	**$194.3**	**$960.6**	**$1,886.5**	**−49**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

New capital for construction

(millions of dollars)

	Week of Jan. 28 1954	Cumulative 4 Wks 1954	% chge 1953-54
Corporate securities	$139.7	$253.3	−18
State and municipal:			
Excluding housing	50.0	184.3	−11
Housing	...	10.3	−79
Federal loans	6.7	13.3	+37
Federal aid	...	...	...
Total non-federal..	**$196.5**	**$461.1**	**−20**
Federal approp.:			
In U. S.........	...	...	...
Outside U. S....	...	...	...
Total new capital..	**$196.5**	**$461.1**	**−20**

ENR indexes

		Base years = 100 1913	1926	1949
Constr. cost	**..Feb '54**	**614.71**	**295.49**	**128.86**
	...Jan '54	614.04	295.17	128.72
Bldg. cost	**....Feb '54**	**437.55**	**236.53**	**124.38**
	...Jan '54	436.88	236.16	124.19
Volume	**..Jan '53**	**338**	**137**	**98**
	Dec '53	547	222	158

FOR THE **BEST CONCRETE,**
USE TOUGH
SISALKRAFT

PROVED THE **BEST PRODUCT** FOR CURING & PROTECTION— ON THOUSANDS OF JOBS!

Sisalkraft can be applied *fast,* requires no special equipment, is low in cost—*and produces absolutely the best results!* At the same time, rugged, waterproof Sisalkraft protects floors from debris, construction stains, and marring.

And use Sisalkraft over fill to waterproof slabs on ground.

Available in rolls 3 to 8 feet wide and blankets in *any* width up to 26½ feet.

Write Dept. ENR-2, Attleboro, Mass. for samples, information and location of nearest Sisalkraft Dealer.

SISALKRAFT
WATERPROOF REENFORCED PROTECTIVE PAPERS

AMERICAN **SISALKRAFT** CORPORATION

ATTLEBORO, MASS. • CHICAGO 6, ILL. • NEW YORK 17, N.Y. • SAN FRANCISCO 5, CALIF.

the most versatile hand level you can own...

LEUPOLD
ABNEY LEVEL

Milled slide holds 3 interchangeable scales:

per cent	topographic
degrees	chainage corrections

Convenience-engineered design permits immediate use of any scale without removing and reversing arc frame. *Controlled* motion of index arm makes easier and more accurate readings. *Internal* focus on bubble.

Overall length... 6½"
Radius of arc.... 1¾"

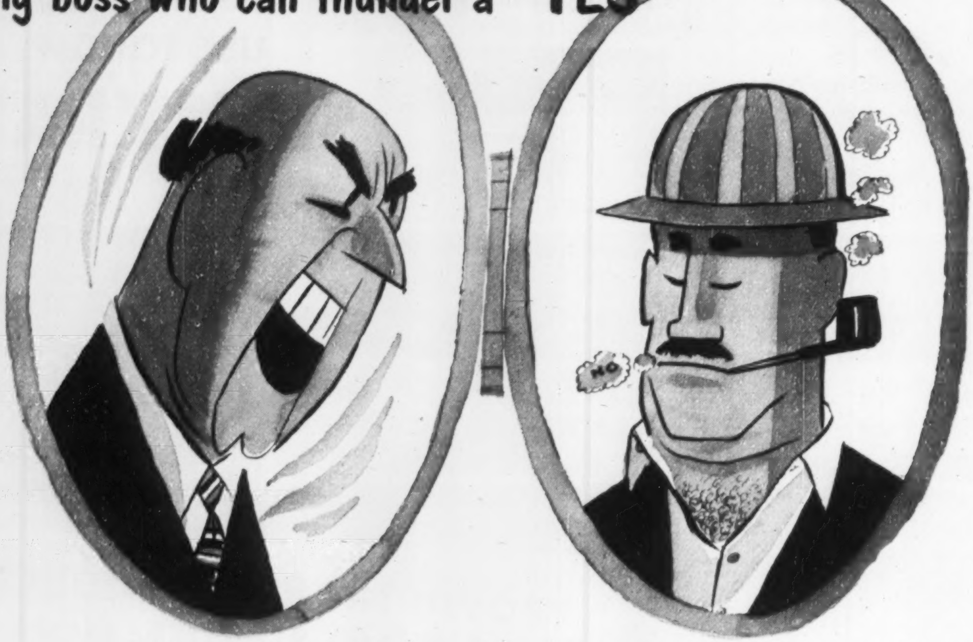
Complete with saddle leather case with belt loop.

Choice of any 3 scales, $30.00

Write for information on the complete line of LEUPOLD levels.
precision engineering instruments since 1907

L&S INSTRUMENTS **LEUPOLD & STEVENS INSTRUMENTS, Inc.**
4445 N. E. GLISAN STREET • PORTLAND 13, OREGON

the big boss who can thunder a "YES"



and the little boss who quietly shakes his head "NO"

Both types are important to you because both have to be sold on your product. In *every* important buying decision in this business of building, many bosses have their say before the final "OK" is given. You can't afford to overlook any of the many types and kinds of bosses that can affect your sale.

Bosses of all sizes, shapes, titles and jobs read Engineering News-Record every week because they need a reliable flow of information on all the forces and factors that make construction tick. The only place they can get all this information – and get it quickly, concisely, lucidly, and all in one package – is Engineering News-Record.

These bosses are the guys who say "yes" or "no" to everything that goes into a construction project. You can reach more of them through Engineering News-Record than any other way.

in construction, it takes many bosses to make one purchase

ENGINEERING
NEWS-RECORD

A McGRAW-HILL PUBLICATION, 330 WEST 42nd STREET, NEW YORK 36, N. Y. • ABC • ABP

OFFICIAL PROPOSALS

RATE: **The rate for Official Proposal advertising is $1.50 per line or fraction set solid. Where the advertisement is set other than solid, the space is measured by total space occupied and charged on basis of 12 lines to the inch.**

CLOSING DATE: **Friday 10:30 A.M. for issue dated the following Thursday.**

SEND COPY TO: **Official Proposal Division,**
Engineering News-Record
330 West 42nd Street
New York 36, N. Y.

Bids: March 9, 1954

CONTRACT 688—GENERAL CONTRACT SUPERSTRUCTURES AND EQUIPMENT
CONTRACT 688E—ELECTRICAL EQUIPMENT
CONTRACT 688H—HEATING AND VENTILATING
CONTRACT 688P—PLUMBING AND GAS FITTING

For THE WESTCHESTER COUNTY, NEW YORK SANITARY SEWER DISTRICT OF NEW ROCHELLE SEWAGE TREATMENT PLANT

Sealed bids will be received in Room 508, County Office Building, White Plains, New York until 10:00 A.M. March 9, 1954 (Eastern Standard Time) immediately after which the bids will be publicly opened and read in Room 808 of said Building.

Bids have previously been received on August 14, 1953 and rejected. The work has been completely revised and is now readvertised.

Under Previous contracts, pipe lines and sub-structures for a primary sewage treatment plant have been completed.

The work under the General Contract 688 will include brick and concrete superstructures for three large and four small buildings having a cubical content of 800,000 cubic feet. The equipment to be installed consists of pumps, grit handling equipment, mechanical sludge collecting system for primary settling tanks, digester equipment, sludge, filter, incinerator and stack, laboratory, metering and chlorinating equipment for a designed population of 81,000 and flow of 31.5 M.G.D.

The work under the Electrical Contract 688E, the Heating and Ventilating Contract 688H, and the Plumbing and Gas Fitting Contract 688P consists of the remaining work necessary to place the sewage treatment plant in operation.

All contract domuments may be seen at Room 508, County Office Building. Bidders may procure plans and specifications for any of the four contracts upon a cash deposit of

CONTRACT 688 ....$50.00
CONTRACTS 688E, 688H and 688P.. $20 Each

which deposit will be refunded to bidders only, provided that all plans and copies of specifications are returned in good condition within thirty days after award of the Contract or rejection of bids.

All bids must be accompanied by a certified check, payable to the County of Westchester, New York, in the following amounts:

For CONTRACT 688........$75,000.00
For CONTRACT 688E.......$10,000.00
For CONTRACTS 688H and 688P.... $5,000.00 Each

The County reserves the right to waive any informalities in the bids, or to reject any and all bids. No bidder may withdraw his bid within forty-five days after the actual opening thereof.

DEPARTMENT OF PUBLIC WORKS
COUNTY OF WESTCHESTER
BY: JAMES C. HARDING
COMMISSIONER

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4113) will be received at Huron, South Dakota, until March 17, 1954, for furnishing labor and materials for Oahe Temporary Substation and transmission lines, Transmission Division, South Dakota, Missouri River Basin Project. Location: near Pierre, South Dakota. Principal items are: Construction of one substation including earthwork, concrete, steel and wood-pole structures, prefabricated service building, and installations; Construction of 3.76 miles of 3-conductor, wood-pole transmission lines; Dismantling 0.3 mile of existing transmission line, and other work. Completion time 365 days. For particulars, address Bureau of Reclamation, Huron, South Dakota; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4114) will be received at Chester, Montana, until March 18, 1954, for furnishing labor and materials for relocations of Fort Peck-Great Falls 161-kv Transmission Line in the vicinities of Havre and Loma, Montana, Fort Peck Project. Location near Havre and Loma, Montana. Principal items are: 5.8 miles of line, furnishing materials and constructing transmission line near Havre; 4.8 miles of line, constructing transmission line near Loma with salvaged materials; lump sums, dismantling and salvaging materials from existing transmission line; and other work. Completion time 90 days. For particulars, address Bureau of Reclamation, Chester, Montana; or Building 53, Denver Federal Center, Denver, Colorado. W. A. Dexheimer, Commissioner.

Contractors—

You have made the BID

You have other jobs to Complete

The Equipment to use on either a Rental or Purchase basis will be found on these pages. Check them NOW and see the Savings you can make.

CLASSIFIED SEARCHLIGHT SECTION ADVERTISING

EMPLOYMENT • BUSINESS • OPPORTUNITIES • EQUIPMENT—USED or RESALE

UNDISPLAYED RATE:
(Not available for equipment advertising)

$1.50 cents a line, minimum 3 lines. To figure advance payment count 5 average words as a line.

POSITION WANTED undisplayed advertising rate is one-half of above rate, payable in advance.

PROPOSALS, $1.50 a line an insertion.

INFORMATION:

BOX NUMBERS count as 1 line additional in undisplayed ads.

DISCOUNT OF 10% if full payment is made in advance for four consecutive insertions of undisplayed ads (not including proposals).

EQUIPMENT WANTED or FOR SALE Advertisements acceptable only in Displayed Style.

DISPLAYED—RATE PER INCH:

The advertising rate is $17.10 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. E.N.R.

Send NEW ADVERTISEMENTS: To New York Office, 330 W. 42nd St., N. Y. 36 for February 18th issue closing February 8th.

ENGINEERS

Foreign service. Graduate Chemical, Mechanical, Electrical & Construction Engineers with minimum of 5 years' experience. For specialized assignments commensurate with qualifications in various phases of construction, estimating materials and cost control, planning and refinery process work. Write giving full particulars regarding personal history and work experience. Please include telephone number.

RECRUITING SUPERVISOR, BOX EN-3

Arabian American Oil Company
505 Park Avenue
New York 22, N. Y.

WANTED

Mechanical Superintendent

Experienced in mechanical and process piping work relating to refineries, chemical plants, compressor plants, paper mills and manufacturing plants. Must have first hand knowledge of piping, rigging, millwrighting, welding and boilermaker work. Location West Coast, principally California. Submit experience record, references, availability, salary expected.

P-1379, Engineering News-Record
1111 Wilshire Blvd., Los Angeles 17, Calif.

Civil Engineer (Graduate)

with ability to translate technical Swedish to English and vice versa. General knowledge of heavy construction experience and tunneling desirable.
Submit complete resume, references, date of availability and salary requirements in first communication.

P-1429, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SALARIED POSITIONS $5,000 — $35,000

We offer the original personal employment service (established 44 years). Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.

R. W. BIXBY, Inc.
659 Brisbane Bldg. Buffalo 3, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

BUILDING ESTIMATOR and Quality Take-Off Man. Graduate Engineer preferred. Thoroughly experienced, permanent position with well established contractor with top-notch organization bidding competitively public works and, commercial buildings throughout the South. Stanley W. Newman Company, Inc., P. O. Box 1646, Mobile, Alabama.

STRUCTURAL ENGINEER and Detailer. Foreman Education and Degree desirable but not required. 4-years experience detailing absolutely essential. Shop and estimating experience helpful. Small shop in middle west doing light structural, miscellaneous & reinforcing. We are looking for top man who has reached a block in his present position and has capabilities of eventually assuming complete responsibilities. P-1434, Engineering News-Record.

CIVIL ENGINEER—Well established company located in Southeastern part of the country has an opening for a graduate civil engineer who is capable of estimating bridges, docks, roads, airports and other heavy construction projects. Real opportunity for the right man. P-1431, Engineering News-Record.

WELL ESTABLISHED detailing concern — N. Y. C., Phila. area—needs fast accurate steel detailers, checkers. Usual privileges. Salary plus cash profit sharing every job. Give complete experience resume. P-1497, Engineering News-Record.

HALF-TIME Graduate and Research Assistants in eastern college; earn M.S. or Ph.D. in C.E., or M.S. in Applied Mechanics. Research or teaching in structural steel, prestressed concrete, hydraulics, soil mechanics, material testing, engineering drawing $1200 for school year, plus tuition. P-1502, Engineering News-Record.

ENGINEER — WANTED Mid-Western Cement Plant is looking for an engineer experienced in concrete construction to travel as field service engineer. For complete details, Write: P-1415, Engineering News-Record.

ROAD DESIGNERS Wanted. Experienced preferred. Permanent — 38 hour week — Retirement plan. Reply stating experience, education, age. Wyoming Highway Department, Cheynne, Wyoming.

SANITARY ENGINEER. Permanent position in State Health Department. Starting salary to $5,044 and maximum to $7,202 depending upon qualifications Liberal personnel Officer, Vermont Health Department, 115 Colchester Ave., Burlington, Vermont.

BUILDING ESTIMATOR—Graduate Engineer preferred. Must be thoroughly experienced in bidding and constructing of Sewer Disposal Plants. Well established Construction Company, bidding throughout Southeast. - Wright Contracting Company, P. O. Box 1580, Columbus, Georgia.

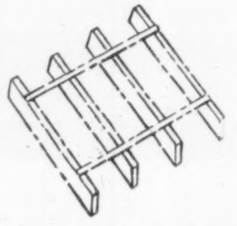
HYDRAULIC OR Sanitary Engineer $8520-$10,700. The City of Philadelphia has an opening for an engineer experienced in the design of large scale municipal sewers & street drainage systems. Must be capable of making studies & reports of flood control methods & assist in the design of sewage & drainage systems. Send resumes and applications to Personnel Office, Water Dept., City Hall Annex, Phila. 7, Pa.

WANTED EXPERIENCED Chief of Party, Civil Engineer and/or Surveyor for Construction and Land Surveys. Submit complete experience record and biography. P-1558, Engineering News-Record.

(Continued on the opposite page)

NATIONAL DISTRIBUTOR WANTED

Entire country open for distributor to stock and sell new line of open steel grating manufactured by well established firm.



Grating to be furnished distributor in stock panels. Distributor must stock, advertise, sell and do necessary fabricating. Only those sufficiently well capitalized to handle large volume on a national basis should apply.

RW-1543, Engineering News-Record
330 W. 42 St. New York 36, N. Y.

WANTED

DISTRIBUTORS' AND/OR MANUFACTURER'S REPRESENTATIVES

The well-established LUG-ALL WINCH HOIST is seeking distributors in uncovered territories. Well rated distributors who will carry an inventory are preferred—especially those servicing building contractors, maintenance superintendents, plumbing and heating dealers, factory and mine managers, etc. The Lug-ALL Winch-Hoist weighs only 8¾ pounds, sells for $35.25. Five year record of repeat business is impressive. Lug-All does the work of five men on block and tackle.

Write us fully and frankly, outlining your firm's experience and contacts. Mention other lines handled and extent of territory you cover. Your inquiry will be answered within 48 hours.

THE LUG-ALL COMPANY
Wynnewood 69, Penna.

When Answering
BOX NUMBERS . . .

to expedite the handling of your correspondence and avoid confusion, please do not address a single reply to more than one individual box number. Be sure to address separate replies for each advertisement.

POSITIONS VACANT
(Continued from opposite page)

ESTIMATOR AND Sales in Virginia on salary base with at least 15 years experience primarily in take-off, pricing and selling in structural and ornamental shop employing 80 men. Permanent position with progressive company. Applicant must have been similarly employed. State experience in detail. P-1549, Engineering News-Record.

WANTED — EXPERIENCED Superintendent for Highway Construction. Reply stating salary expected, references, experience, and scope of work. Permanent job for the right man. Pennsylvania and Maryland Area. P-1577, Engineering News-Record.

CARPENTER — FOREMAN, young ambitious man who wants to get ahead with a progressive general contractor in Northern New York State. Write, giving experience, references, and salary desired. P-1568, Engineering News-Record.

WANTED: STRUCTURAL steel designer. Must be experienced in design of highway bridges and under 50 years of age. Submit brief outline of experience and state minimum starting salary acceptable. Address reply to the Bridge Division, Tennessee Department of Highways, Cotton States Building, Nashville, Tennessee.

WANTED: CONSTRUCTION Superintendent by March 15 for work in New England, with experience in industrial type buildings and Government projects. Must be capable of taking complete charge of work, including concrete and masonry. Send full record of education, past experience, references, and salary expected. P-1545. Engineering News-Record.

EMPLOYMENT SERVICES

SALARIED PERSONNEL, $3,000-$25,000. This confidential service, established 1929, is geared to needs of high grade men who seek a change of connection under conditions assuring, if employed, full protection to present position. Send name and address only for details. Personal consultation invited. Jira Thayer Jennings, Dept. L, 241 Orange St., New Haven, Conn.

OVERSEAS CONSTRUCTORS — Digest Guide of most active construction-engineering firms, oil co's., UN & gov't. agencies now hiring for foreign projects. Send $1.00. Cove-McKane Int., P. O. Box 126-E, NY 4, NY.

SELLING OPPORTUNITY OFFERED

SALES ENGINEER—Pittsburgh, Pennsylvania and Albany, New York territories open with established national concern selling prefabricated metal products to engineering and construction markets. Positions offered are permanent and present excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Ages 24 to 30. Car furnished. Complete training program. Salary and bonus. RW-1420, Engineering News-Record.

To EMPLOYERS Who Advertise for MEN:

Frequently, when there are many applicants for a position, only the most promising letters are acknowledged. The other applicants never know whether their letters reached a prospective employer or not. These men often become discouraged, will not respond to future advertisements and even question their bona fide character.

Every Advertisement Printed in the Searchlight Section Is Duly Authorized. **You can help keep our readers interested and get better returns to your advertising in this section if you acknowledge each reply—in plain envelopes, if you wish.**

Classified Advertising Division

McGRAW HILL PUBLISHING CO., INC.

"Put Yourself in his place."

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. ***Forty-fourth year. Write today.***

WILSON *Engineering Corp.*
College House Offices—HARVARD SQUARE, CAMBRIDGE, MASS.

POSITIONS WANTED

CONSTRUCTION ENGINEER, Reg. Mature executive, experienced construction, estimating, specifications, design, maintenance, commercial, industrial buildings, housing. Contract management, sub-contracting. Some foreign experience, languages. Will go abroad. PW-1387, Engineering News-Record.

CONSTRUCTION ENGINEER—C.E. graduate with 25 years successful experience supervisory capacity both field and office. Sound knowledge all phases general construction and some industrial chemical. Seeking connection where top man required. PW-1307, Engineering News-Record.

PROJECT MANAGER or General Superintendent desires connection with construction company doing foreign or domestic work. Broad experience in negotiation, estimating, organizing and supervision of all types of heavy construction as well as in over-all management. Highest references. PW-1505, Engineering News-Record.

CIVIL ENGINEER B.S.C.E., 25, single, 3 years diversified field experience in heavy construction. Locate anywhere domestic or foreign. Spanish fluent. PW-1501, Engineering News-Record.

GENERAL SUPERINTENDENT available soon. 20 years experience in building construction. PW-1447, Engineering News-Record.

GENERAL CONSTRUCTION Superintendent (Residential) desires position. General construction experience, but residential project development preferred. Employment and education resume furnished upon request. PW-1470, Engineering News-Record.

CONSTRUCTION ENGINEER Supt. Recently completed refinery construction project in Middle East. 15 years experience in heavy construction, desires new connection preferably foreign. PW-1471, Engineering News-Record.

CONSTRUCTION EXECUTIVE now employed in middle West, wants new connection in South or on West coast. Experience includes Field Supervision, Estimating and Bidding, Cost Controls, Sub-Contract, Administration, Owner-Architect relations Equipment Selection, Financial Management. Able to assume full responsibility in building contractor's organization. PW-1424, Engineering News-Record.

REGISTERED HIGHWAY engineer and land surveyor, 30 years experience, 7 years construction superintendent highway and bridge construction, State side or offshore. PW-1397, Engineering News-Record.

ESTIMATOR, HEAVY Construction. Excavation, foundations, concrete. Long experience New York area. P.E. Accustomed to responsibility in bidding, sub-contract relations, cost analysis and cost control, administration, sales-engineering on concrete forms. One month availability. Prefer New York location with Contractor. PW-1309, Engineering News-Record.

CHIEF STRUCTURAL engineer 18 years domestic and foreign experience, at present in charge of Highway Bridge design department, young aggressive, efficient organizer, languages. Available for responsible position only. Goes West, overseas. PW-1363, Engineering News-Record.

CONST. ENGINEER—Asst. Estimator—reinf. concrete—12 yrs. experience, Age 33, N.Y.C. area, INgersoll 9-0317.

WANTED POTENTIALLY profitable sales and installation Franchise for equipment or construction materials by graduate engineer with 19 yrs. contracting and promotional experience, successful record, aggressive, will invest to $15,000 prefer Northeast. PW-1557, Engineering News-Record.

SUPERINTENDENT OF General Building Construction desires position. Years of varied experience. Accustomed to full responsibility supervising all Trades and equipment. PW-1573, Engineering News-Record.

ENGINEER, C.E., P.E. Age 34. Concrete construction: estimate, price, detail, design, field supervision. PW-1572, Engineering News-Record.

CE GRAD. 32, seven years supervising Industrial constr. 3 years office design. Desire connection with future in Constr. Management. Prefer western U. S. Resume on request. PW-1571, Engineering News-Record.

Engineers—Foremen—Office Men
Learn latest methods to organize and run work. Prepare for the top jobs.
Send post card for details.
GEO. E. DEATHERAGE & SON
CONSTRUCTION CONSULTANTS
411 So. 5th Ave. Lake Worth, Florida

POSITIONS WANTED

CONSTRUCTION SUPERINTENDENT. 20 years experience, buildings, bridges, sewage disposals, all types of heavy construction. Best of references. Live in house trailer, will travel. PW-1553, Engineering News-Record.

GRADUATE CIVIL Engineer. Seven years varied construction experience doing quantity take-off, assembling bids, coordinate sub-contractors, etc. Desire position in office of General contractor. Prefer Mid-West. Reply PW-1555, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, concrete pipe manufacturer, considerable experience. PW-1556, Engineering News-Record.

REG. STRUCTURAL & Hydro Engineer, very experienced in design, estimates, construction and contracting wants to join Consulting Firm or Contractor. Available very soon. Write PW-1533, Engineering News-Record.

CIVIL ENGINEER, registered, estimator, with line design and contracting experience desires work with progressive contracting firm or architect as designer, estimator of assistant to Manager. Available soon. Write PW-1534, Engineering News-Record.

PUMPCRETE OPERATOR, top notch man will be available Feb. 5th. PW-1537, Engineering News-Record.

SELLING OPPORTUNITY WANTED

FORMER SALES Manager, 20 yrs. experience with large equipment manufacturer, wishes to represent industrial and construction equipment and material accounts for the western part of N. Y. State. RA-1469, Engineering News-Record.

SETTLED
Commercial and Industrial Concrete Floors and Airport Runways Raised and Stabilized by Hydraulic Pressure.
15 yrs. experience
LEE AND COMPANY
4545 De Tonty St. Louis 10, Mo.
Lee Gareil, Mgr. Mohawk 4414

GLAZER STEEL Corp.
Structural and Plate Steel Fabricators
Open capacity for quick delivery now available. We solicit your inquiries for Steel Fabrication and Warehouse Steel Products. Let us figure your jobs . . . Large or Small.
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Phone 4-8601

GIANTS UNDER THE EARTH
The Construction of the Brooklyn-Battery Tunnel
This is the story of the key men of the miraculous 20th century—those hardy human sandhogs who dug under water and blasted through earth and rock to build the slick, modern tunnels we use today for fast motor and railroad traffic.
Illustrated and photos. Per copy....................$1.00
Send check or money order to
PATRICK J. COSTELLO
152 E. 46th St. New York 17, N. Y.

CONCRETE PLANT EQUIPMENT

2—1,200 barrel Johnson Cement Silos with bucket elevator, under track hopper and screw conveyor.

2—Johnson 150 cubic yard Concrete Plants, 3 aggregate and 1 cement compartment, 2 cubic yard aggregate and cement weight batchers, 520 barrel auxiliary cement bin with truck hopper, elevator and screw conveyor. One outfit has aggregate truck hopper and bucket elevator. Plants include 2 each of Ransome 28S Mixers.

50—1½ yard Blaw-Knox, R-46, Bottom Dump Concrete Buckets.

Subject to prior sale

FRAZIER-DAVIS CONSTRUCTION COMPANY

1319 Macklind Avenue, St. Louis, Mo. STerling 1950
Box 188—Grahamsville, New York Grahamsville 2861

FOR RENT

TRUCK CRANES

Twenty—10-ton to 20-ton Capacity
Sectional Boom Lengths to 130 Feet

LIMA—P&H—MANITOWOC

30-ton to 50-ton Capacity
Sectional Boom Lengths to 175 Feet

ROGERS LOW-BED TRAILERS

Up to 150-Ton Capacity

ROGER SHERMAN TRANSFER CO., INC.
EAST HARTFORD, CONN.

Branches: SPRINGFIELD, MASS. NEW HAVEN, CONN. ALBANY, N. Y.

SHOVELS—CRANES—DRAGLINES

Northwest 80D Shovel-Dragline. New 1948.
Northwest 95 Crane-Drag., Bm. 95'. New 1948.
Northwest 80-D Shovel-Crane. Diesel.
Buc-Erie 51-B Shovel. Practically new cond.
P&H 955-ALC. Diesel Crane, 130' boom, 1951.
Lima Model 1201 Diesel Shovel 3½ yds.
Buc. Erie 54-B Shovel-Dragline. Excellent.
Buc- Erie 120-B Electric Shovel. 5 yds.
Lorain L820 Shovel-Crane-Drag. 2 yds.
Manitowoc Mod 3500 Diesel Shovel.
Manitowoc 4500 Shovel-Dragline. New 1951.
Lorain Mod. Mc-414 Moto-Crane 70 ft. Boom.

WHIRLEY-GANTRY-PORTAL CRANES

American Mod. 10125. 50 tons, 40' radius 125' boom.
Washington Mod. 28-105, 42 tons, 30' radius, 135' boom.

DITCHERS

Buckeye Model 160. Excellent.
Parsons Model 310.
Cleveland Model 320. Diesel powered.

CONCRETE PLANTS—BINS & SILOS

Heltzel 4 Comp., 3 agg., 150 yds., 200 bbls. cement.
Noble CA-244. Large capacity plant. Complete.
Heltzel 1000 bbl. 2 compt. cement silo. Complete.
Large plant 212 yds. 6 compt. aggregate and cement.
Large plant 400 yds., 5 compt. with 2 yd. Mixers.
Cement bin 400 bbls. with batcher. NEW.
Agg. bin. 100 tons 3 cpts. 2 yd. weighbatcher. NEW.

ASPHALT PLANTS

Barber-Greene 848 complete plant.
Madsen 4000# complete. Excellent.
Pioneer Model 101, complete, new 1948. Excellent.
Monotrol-Overmander, 25 tons per hr. capacity.
Simplicity Model S-100. Diesel powered.
Hetherington-Berner Asphalt Moto-Paver.

STIFF LEG AND GUY DERRICKS

American 40 ton stiff leg 140' boom, 100 HP, elec. hoist.
Stiff leg 75 tons with 3 drum elec. hoist.
Steel Stiff leg Derrick 50 Ton, 100' Boom.
Steel stiff leg derrick, 30 tons, 100 ft. boom.
Guy-Erectors 110' Mast 100' BM., 35 Tons.

CONCRETE MIXERS AND PAVERS

Barber-Greene Model 879A asphalt paver-finisher.
2 Smith 56-S tilting 2 yd. elec.
Jaeger BP-5 Asphalt Paver & attachments.
2 Ransome 34-E Dual Drum Pavers Diesel.
Koehring 34 E Dual Drum Paver. Diesel.

RICHARD P. WALSH CO.

30 Church St. New York 7, N. Y.
Cable RICHWALSH Cortlandt 7-0723-4

FOR SALE

VALUABLE EQUIPMENT

The Town of Windsor, Windsor North Carolina, by order of the Board of Commissioners do offer for sale at once, for cash F.O.B. Windsor, N. C. the following diesel engines, all of these engines are in excellent running condition, anyone interested may see them at anytime in Windsor.

One—360 horse Fairbank, Morse diesel engine, direct connected to 240 KW generator, with switch board panel complete, Price $4,000.00
One—360 horse Fairbank, Morse diesel engine, direct connected to 240 KW generator, with switch board panel complete. Price $6,000.00
One—180 horse Fairbank, Morse diesel engine belted to 120 KW direct connected exciter on generator, with switch board panel complete. Price $2,000.00
One—120 horse Fairbank, Morse diesel engine direct connected 60 KW belted connected to exciter, with switch board panel complete. Price $1,000.00
One—575 horse Fairbank, Morse diesel engine direct connected 392 KW generator direct connected to exciter. Price $15,000.00

Signed
J. B. Spivey
Mayor

FOR QUICK, DEPENDABLE

COMPRESSOR

SERVICE

AMERICAN AIR of JERSEY

GAS • DIESEL • STEAM • ELECTRIC

SELL—BUY—TRADE—RENT—REPAIR

A RENTAL COMPRESSOR FOR EVERY JOB

55 CFM Lindsay (GAS) Portable
60 CFM Worthington (GAS) Portable
70 CFM Smith (GAS) Portable
89 CFM 6 x 7 Worthington HB, 15 HP Elec
105 CFM Worth-IR-CPT Portable
107 CFM 7-7 x 7 Ingersoll FS-1 STEAM
129 CFM 7½ x 7 American AF-1, 20 HP
142 CFM Ingersoll Semi-Portable 25 HP
160 CFM IR-Worth Portable
165 CFM Smith 110SR Semi-Portable, 25 HP
195 CFM 8-9 x 9 Worthington HS STEAM
210 CFM Worthington (GAS or DIESEL) Port
211 CFM 9 x 9 Worthington HB, 40 HP Elec
279 CFM 11-10 x 11 Worthington HS STEAM
294 CFM 10 x 12 Worthington HB, 50 HP
315 CFM Worthington (GAS or DIESEL) Port
387 CFM Gardner Semi-Portable 75 HP
445 CFM Gardner Semi-Portable 100 HP
462 CFM 12-14½ x 13 American AF-S STEAM
500 CFM Worthington (DIESEL) Portable
538 CFM Worthington Semi-Portable, 100 HP
600 CFM Worthington (DIESEL) Portable
628 CFM 14 x 13 Ingersoll ES-1, 100 HP

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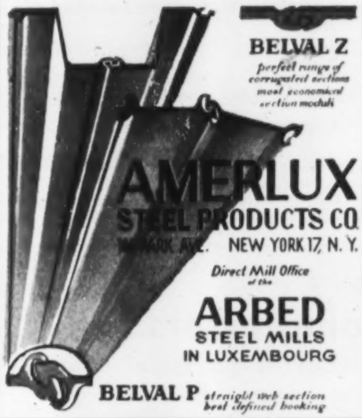

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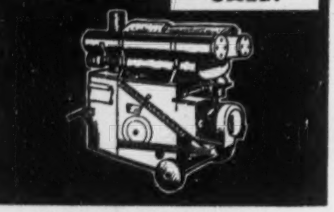

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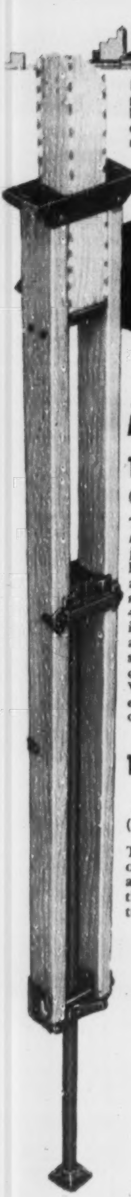

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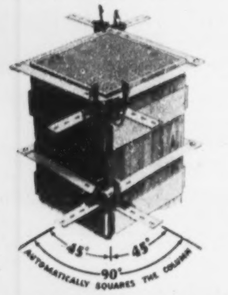

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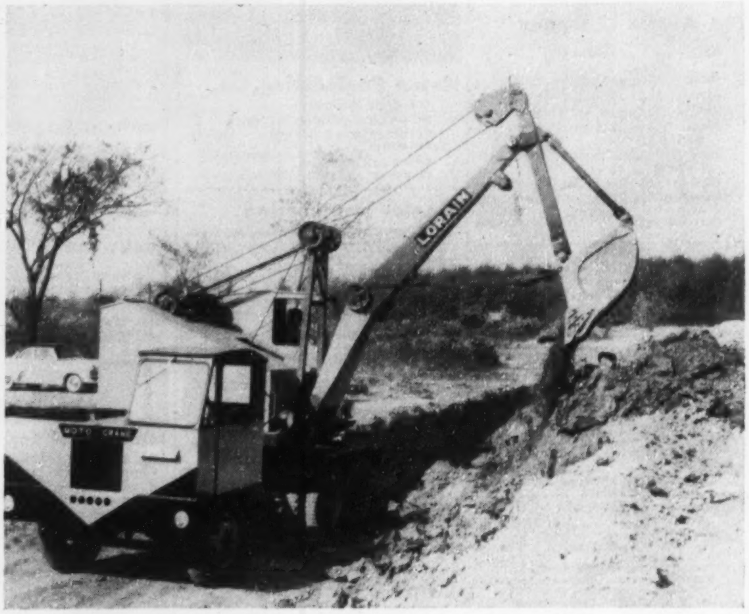


Thew digs into the low-priced field

For some time now there have been strange new noises coming out of the gigantic shops of the Thew Shovel Co. at Lorain, Ohio. The new sounds were those of creative labor, for, when the doors finally opened, out rolled a new addition to the Moto-Crane family.

The new "baby" turned out to be a neat little convertible with a 6-ton crane rating, a shovel and hoe capacity of ⅜ yd and a price tag that read, "Approximately $14,400 f.o.b. Lorain." This, then, was Thew's new entry, or more accurately, re-entry in the low-price field.

But don't let that low price fool you. In the upper assembly there is the same interchangeable "packaged" component design found in the higher priced Moto-Cranes. With this setup, each major component—the engine, clutch shaft, hoist shaft and cab—may be removed as a complete unit and a new one installed in its place.

A 6-cyl, 45-hp Ford engine and all the accessories including a gear reducer are assembled on a single-piece mounting frame that can be slid in or out of the rear doors as a complete unit.

The clutch shaft, mounted just ahead of the engine, is powered by a chain drive and is equipped with five identical friction shoe clutches. These interchangeable clutches control the transmission and direction of power for all operations of the machine.

The hoist shaft unit consists of side frames, shafting, hoist drums, brakes and controls.

The whole assembly is mounted on a turntable bed of all welded design revolving on four hook rollers with adjustable side rollers to take horizontal thrusts.

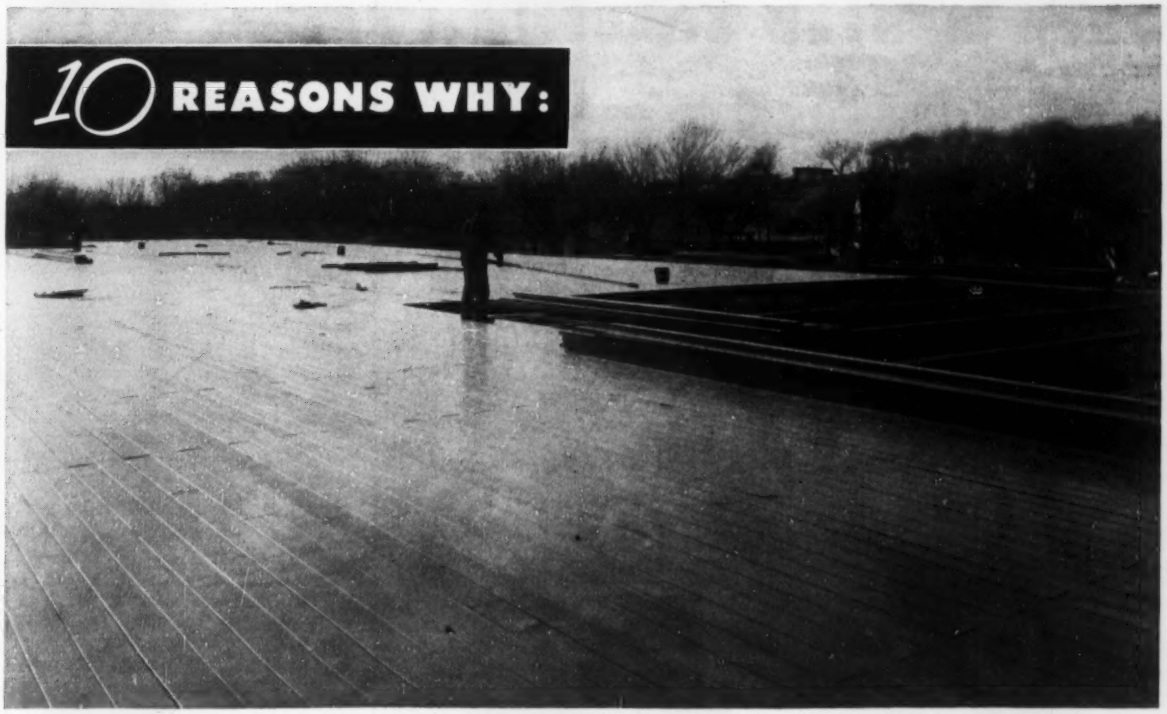
A two-piece, 25-ft butt flange-connected type crane boom is standard. The hoe boom—narrow and of gooseneck design for better visibility—is 14 ft long with a 5-ft stick and the ⅜-yd hoe bucket will dig a trench 13 ft deep and 24 in. wide when equipped with detachable side cutters.

The ⅜-yd shovel boom is 14 ft long and is used with a 12 ft 7 in. stick. The shovel is the independent, positive, cable-crowd type and is equipped with a power-operated dipper trip.

• **The new carrier** is a three-axle unit that mounts ten large truck tires (9:00x20) for good flotation. The two rear axles are mounted on rocker beams to permit independent movement of each axle for off-the-road travel and provide a stable base of operations, but flexibility for road travel is said to be maintained.

The transmission system consists of a main and auxiliary set. The main transmission is mounted integrally

(*Continued on page 89*)



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TRUSCON FERROBORD® STEELDECK

offers Lasting Roof Economy

1. **PREDICTABLE PERFORMANCE**—Ferrobord is a parallel system of strong interlocking structural members. Performance can be calculated by means of accepted engineering principles.
2. **HIGH CARRYING CAPACITY**—Ferrobord may be considered as a continuous beam rather than a simply supported beam, with a consequent increase of 25% in carrying capacity.
3. **FULL-LENGTH INTERLOCKING**—Gives maximum lateral distribution of concentrated loadings.
4. **LONG SPANS**—Ferrobord is fabricated in units long enough to span three or more purlins. This means economies in fabrication, erection time and labor.
5. **HIGH STRENGTH**—Ferrobord is manufactured from both 20-gage and 18-gage copper-bearing steel having a yield strength of not less than 30,000 psi. Full-length interlocking construction adds further strength.
6. **LIGHTWEIGHT**—Easy to handle, easy to erect. Saves time. Speeds construction.
7. **ERECTED FROM ABOVE**—No scaffolding needed. Individual units clipped or welded to supporting framework. Saves time. Saves expense.
8. **SMOOTH SURFACE**—Top surface presents a smooth, unbroken face, with no openings, ideal for application of insulation and built-up waterproofing. Ferrobord may be insulated to any required degree.
9. **VERSATILE**—Ferrobord is adaptable to flat, pitched, or curved roofs.
10. **ENGINEERING ASSISTANCE**—Available from Truscon branch offices to help you lay out Ferrobord Steeldeck, and to help select the proper insulation and built-up roofing.

A simple 20-minute demonstration will prove all 10 points. See Sweet's File for more information, or write us for detailed literature.

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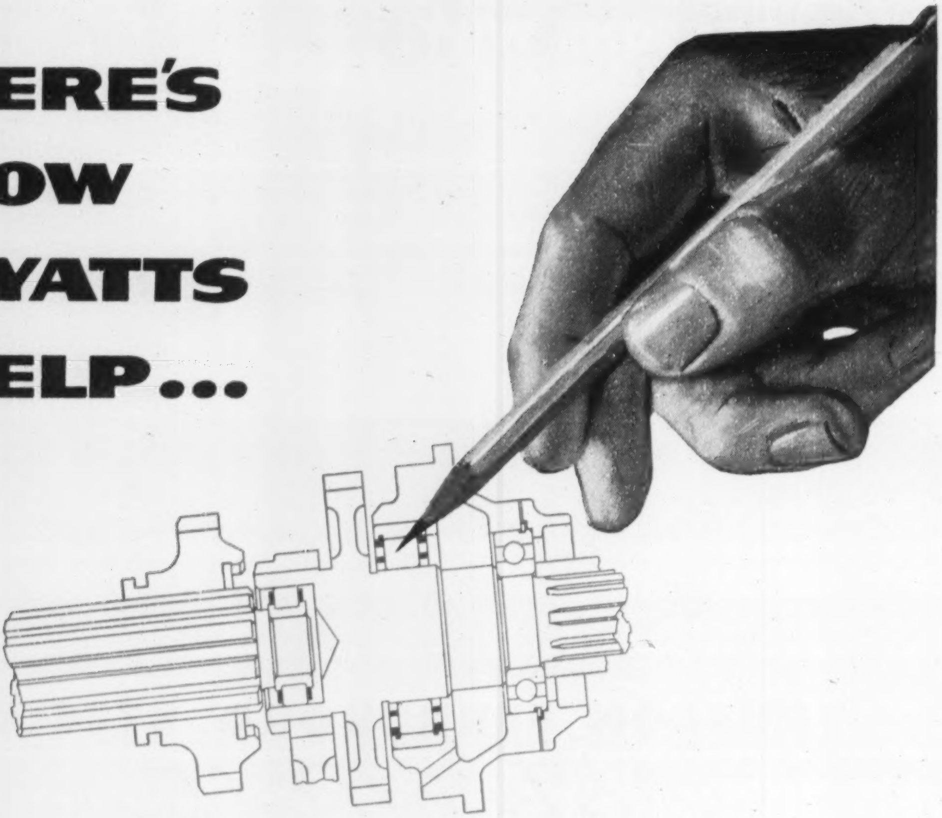
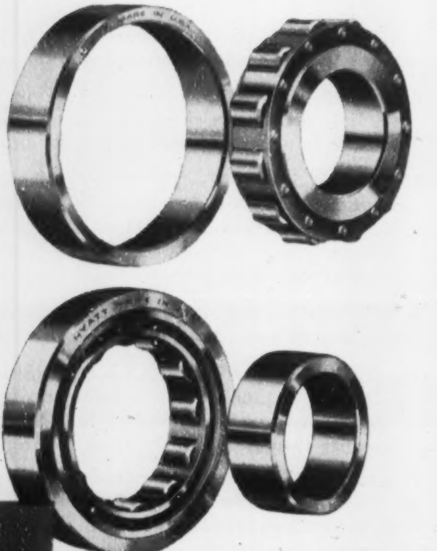
when LIMITED SPACE is a design factor

HERE'S HOW HYATTS HELP...





Sometimes a fraction of an inch is the difference between a simple design modification and costly re-tooling. And the engineer who is thoroughly familiar with Hyatt Roller Bearings will know a lot about how to save those fractions. He'll know, for example, that to gain greater shaft rigidity with the same size housing, he need only check his Hyatt catalog for a separable inner race type of bearing. This type—available in a wide range of sizes—may be applied with the rollers operating directly upon the surface of a suitably hardened and ground shaft. Thus, a larger-diameter shaft may be used without sacrificing bearing capacity, or a larger-size bearing may be used without changing the size of the shaft. For a copy of Hyatt's latest catalog, No. 150, write to Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.

HYATT ROLLER BEARINGS

STRAIGHT BARREL TAPER

with the engine and yields five speed changes, four forward and one reverse. The auxiliary set is mounted amidships and offers two selections that double the number of main speeds.

In high the carrier moves forward at 8.2, 17.0, 31.1 and 52.6 mph; in reverse at 6.7 mph. Low gear speeds are approximately 62% of high with all travel power supplied by a 6-cyl, 112-hp Ford gasoline engine.

It is pointed out that the carrier's side frames are a husky 15 in. deep and the front bumper and cross-bracing are built into the frame as a single weldment.

The standard brake system employs vacuum-boosted hydraulic brakes on all four rear wheels, but front wheel hydraulic brakes may be had as optional equipment. Also available are two sets of telescopic outriggers, one for installation amidships and one for installation across the rear.

Further optional equipment includes center sections for extending the boom (recommended maximum is 45 ft), precision boom lowering device, cable boom stop, swing brake and hook block. THEW SHOVEL CO., LORAIN, OHIO.

Lightweight tile facing features ready workability

A new lightweight tile facing threatens to command a relatively large part of the market now held by terra cotta tiles. Only ⅜ in. thick, the product weighs about ⅓ as much as standard tiles—4 psf compared with 10 or 12 psf for terra cotta—and unlike terra cotta it can be cut easily on the job with mason's saws. This advantage of light weight and easy cutting indicates that the title can be shipped anywhere without adding excessive freight charges to the factory price.

Thin Veneer, as it is called, is produced in sizes from 12 x 16 in. to 16 x 24 in., all ⅜ in. thick. It is installed by adhesion using the same general practice as that with ceramic wall tile; the setting bed is ⅜ to ½ in. thick and joints measure ⅛ to 3/16 in. KRAFTTILE CO., NILES, CALIF.

Striated Fiberglas tile cuts noise 80 per cent

A new acoustical tile has been developed that combines a noise reduction coefficient of 80 per cent with the ability to reflect 75 per cent of the light striking it. For added decorative effect, the new tile face is scored by a series of irregular striations.

The tile is available in 12 in. sq.

(*Continued on page 90*)

HERE'S MORE POWER TO YOU

CONTINENTAL MOTORS
Powerful as the Nation
AMERICA'S STANDARD
RED SEAL

. . . AT LOWER OVER-ALL COST

When you buy a vehicle or machine powered by Continental Red Seal engine, you "plug in on" specialized knowledge that goes back a long, long time. You benefit from engineering features, and advances in production technique, evolved over a period of more than 50 years. Red Seal dependability, economy and stamina have long been building prestige for quality leaders in the transportation, farm, and construction equipment fields . . . providing *more* and *better* power, at lower over-all cost.

Continental Motors also builds the world's outstanding line of heavy-duty four-cycle air-cooled models, for use on lawnmowers, garden tractors, and similar equipment. 2 to 3 h.p., they feature the exclusive Contex external ignition system, greatest air-cooled engine advance of recent years.

PARTS AND SERVICE EVERYWHERE

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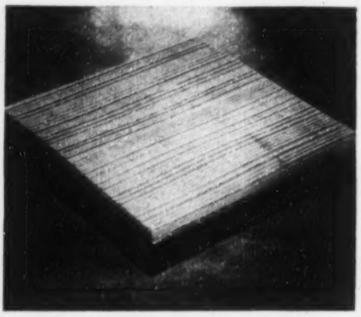

and 12x24-in. sizes and is composed of fine fibers of glass. Compressed into shape, the material is nevertheless highly porous—whence comes its acoustical qualities. According to the manufacturer, these qualities are not impaired by as many as eight spray applications of a non-bridging water-base paint.

Stria Acoustical Tile, as it is called, is reportedly dimensionally stable, fire-safe, rot and verminproof. When necessary the surface may be cleaned with fresh wallpaper cleaner or it may be vacuumed. Owens-Corning-Fiberglas Corp., Nicholas Bldg., Toledo 1, Ohio.

Automatic proportioner for chlorinator is low priced

A new corrosion resistant automatic proportioning component for chlorinators has been developed to feed chlorine to water mains or sewage lines in a direct and preset proportion to the flow rate; however that may vary.

The new unit is reported to handle the whole proportioning job under conditions existing at the majority of water and sewage installations. No ratio controllers, transducers or pressure transmitters are required; it is operated by differential pressure coming directly from an orifice plate. Once an initial setting for a desired proportion of chlorine is made manually on the chlorine rate valve the automatic proportioner takes over.

The automatic proportioning component replaces the differential pressure regulator used in manually controlled chlorinators. The proportioner, connected by both high and low pressure taps at an orifice in the main flow line, extracts differential pressure. The pressure is then converted to a force by means of a diaphragm that changes the loading of the chlorine gas differential pressure regulator within the proportioning unit. In response, the pressure drop across the chlorine rate valve changes so as to vary the chlorine

(Continued on page 93)

CEMENT GUN CO. USES "GUNITE"

FOR DISPOSAL PLANT REPAIRS

The top photo shows badly disintegrated concrete Imhoff Tank of a small New Jersey Sewage Disposal Plant. The repairs involved removal and rebuilding of two walls of this tank in their entirety, together with the relining of the tank with two inch "GUNITE".

The two trickling filters were also repaired with "GUNITE" to a thickness of two inches both inside and outside, as well as rebuilding sections of the circular wall. On the interior of the trickling filters the "GUNITE" was carried down eighteen inches below rock line.

The repairs illustrated above have restored the Plant at small expense to original design.

Many varied types of repair, remodeling and new construction with "GUNITE" are described and illustrated in our Bulletin A2400. A request on your letterhead will bring a free copy by return mail.

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"GUNITE" CONTRACTORS
GENERAL OFFICES — ALLENTOWN, PA., U. S. A.
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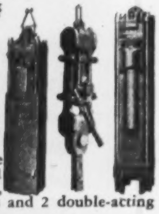

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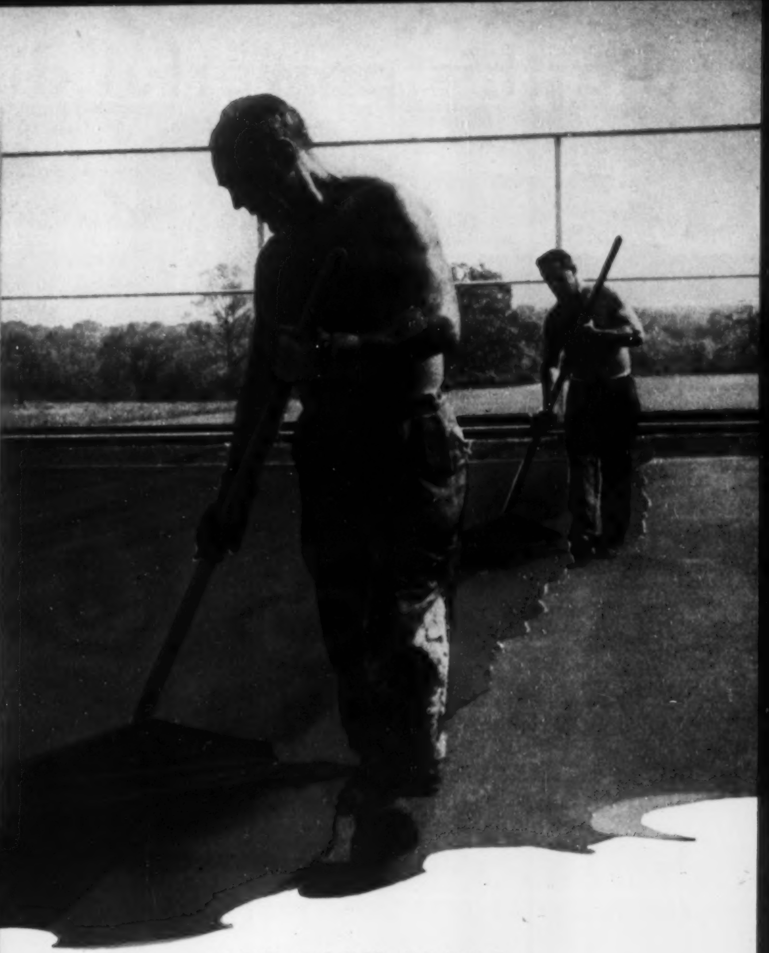
Economical...Factory-compounded in fast colors... Red, Black or Green. Long-Lasting...Easy to apply

Walk-Top gives a proved, uniform, protective, wear-resistant seal for all types of pavements.

In all parts of the country Paving Contractors and "Hot Plant" operators are now using Walk-Top to satisfy the demand for a smooth, colorful surface that is grit-free, resilient, and weatherproof. They have found that this easy-to-use material—applied cold—offers an economical method of sealing all surfaced areas.



This photograph shows the green walks on Bedloe's Island around the Statue of Liberty

Home-owners are proud of their distinctive "Walk-Top-sealed" driveways

FOR PLAY AREAS

Walk-Top seal is *standard* for thousands of school play areas throughout the country. In San Francisco, for example, over 2,000,000 sq. ft. of school playgrounds, both old and new, have been sealed with Walk-Top in the last two years alone. Other typical applications may be found in Akron, Pittsburgh, Washington, D. C., Providence, Fresno and Cincinnati. School and Park Authorities in these cities and in many others repeatedly specify Walk-Top.

WALKS AND PARKING AREAS*

Walk-Top is used extensively on all types of paving to provide a fast-draining, void-filling seal that is colorful, smooth and resilient.

FOR DRIVEWAYS

Walk-Top, easily applied cold over the old pavement, by brush or squeegee, gives a clean, enduring, colorful seal—at low cost.

WALK-TOP is available through Dealers and Contractor-Distributors throughout the country. Contact our nearest office for information.

WALK-TOP and Play-Yard Binder for Playgrounds—Laykold Wearcoat and Resurfacer for Tennis Courts—standards of quality for over *twenty* years.

**For oil-resistance ask for Colfix Jet Seal.*

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dig this powerful ditcher

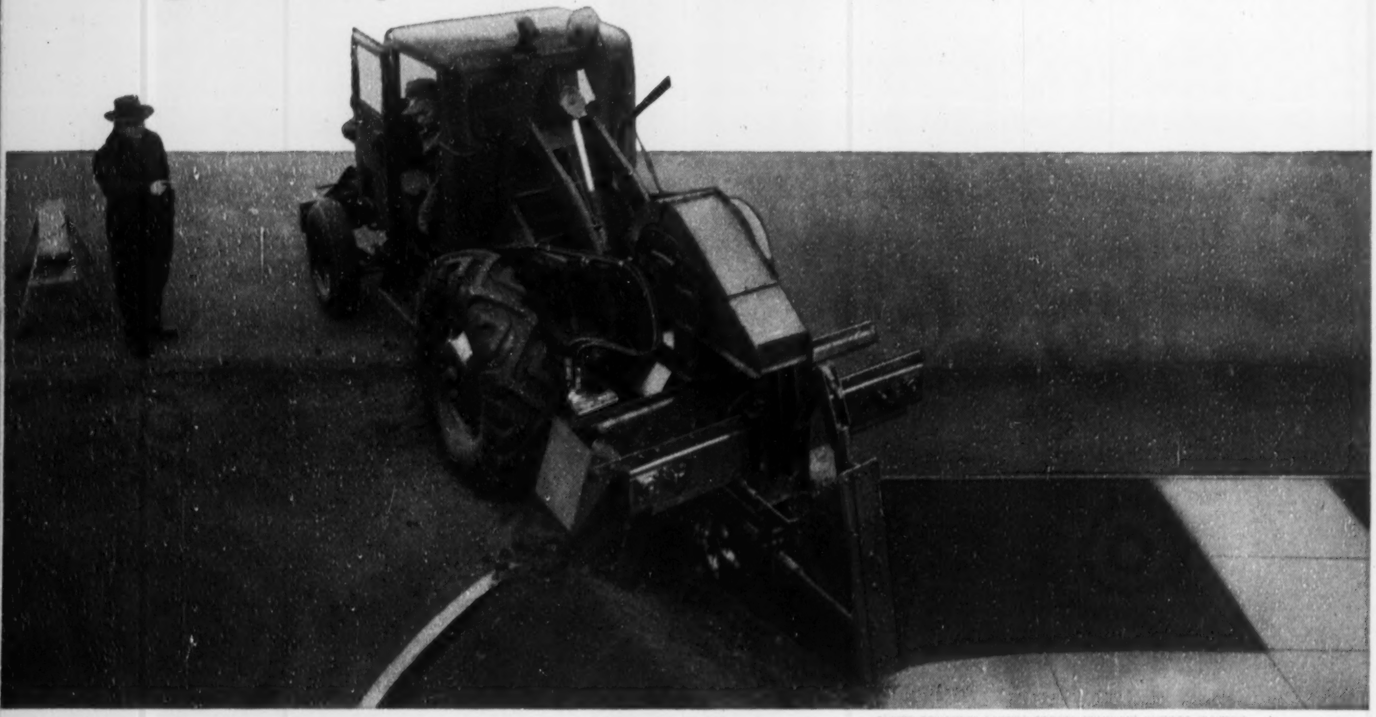


PHOTO COURTESY BARBER-GREENE COMPANY, AURORA, ILLINOIS

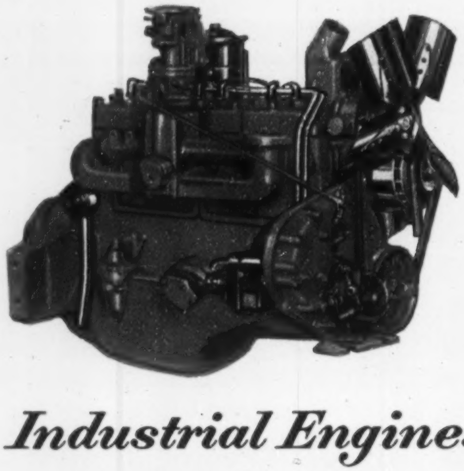
Chrysler *power and gýrol Fluid Coupling team up to put the "run" in runabout.*

When the operator of this ditcher "lowers the boom" things happen fast. That's because the vertical boom concentrates the weight of the unit on the work, bringing additional pressure to bear on digging buckets. This, in turn, allows them to bite into practically any kind of ground formation, frozen soil or even bituminous pavement. Upon completion of digging, a simply-operated hydraulic control raises the boom and the unit takes off—automotive style—down the highway to the next job.

Behind the power and dexterity of the Barber-Greene Runabout is the Model 8 Chrysler Industrial Engine and Chrysler gýrol Fluid Coupling. This 250 cubic inch displacement engine with its wide speed range drives the bucket line, crowds the ditcher along the trench, supplies power to the hydraulic boom hoist and takes the ditcher to the next job at traffic speeds. Chrysler gýrol Fluid Coupling helps the operator coordinate crowding and bucket line speeds for maximum digging efficiency.

If your equipment requires power within our 217 to 413 cubic inch displacement range, engines that will operate equally well with gasoline, natural or L-P gas fuels, engines ideally suited to power take-off, then see a Chrysler Industrial Engine Dealer. He can supply *engines equipped at the factory for their jobs in the field.*

Remember too that Chrysler Power is not expensive. Production-line methods adapted to specialized industrial engine building provide a custom-built engine at mass-production prices. If you prefer, write: ***Dept. 82, Industrial Engine Division, Chrysler Corporation, Trenton, Michigan.***



CHRYSLER *Industrial Engines*

HORSEPOWER WITH A PEDIGREE

AGRICULTURE • INDUSTRY • CONSTRUCTION • OIL FIELDS flow in direct proportion to the flow of water to be chorinated.

The proportioner is available in two models with standard differential ranges of 0-50 in. and 0-100 in. water column.

The new component in combination with a chlorinator costs less than $2,000. This is said to be the first time that automatic proportioning of chlorine has been possible at such low cost. Fischer & Porter Co., 20 Jacksonville Rd., Hatboro, Penna.

Electrode developed for unskilled arc welders

Becoming a good welder depends on many things, and among them is the ability to determine and hold the proper distance between the electrode and the work. A new electrode has been developed that reportedly has no such critical arc gap—freezing is thereby eliminated. There is no conventional striking of the arc; contact with the grounded work is sufficient.

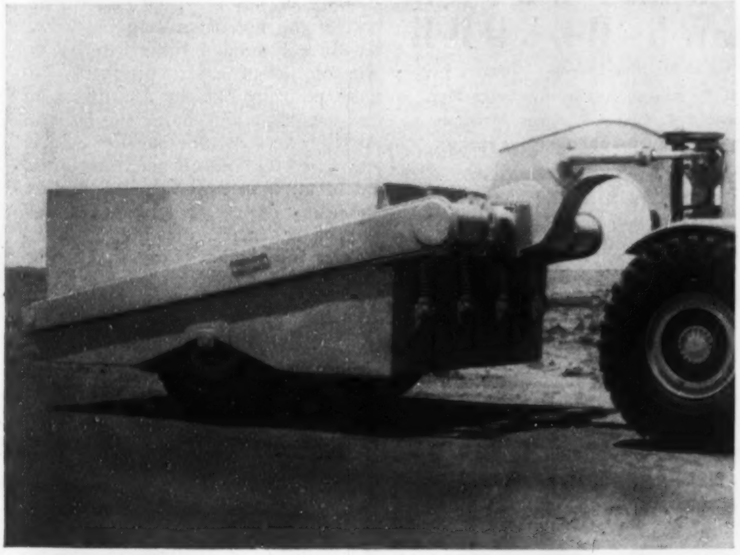
The new electrode is identified as All-State Monoweld No. 1 Special. It is described as an all-position AC-DC reverse polarity rod for use on carbon, low-alloy and high-strength steels, low and medium-carbon cast steels and cold rolled steels. Physical characteristics of the deposited metal are listed as 75,000 psi tensile, 65,000 psi yield and 27 per cent elongation in 2 in.

Monoweld No. 1 conforms to AWS-ASTM Specifications A-233-49T for E-6013 Class and is said to measure up fully to AWS 6013 and 6012 while giving the full filleting and deep penetration of AWS 6010 and 6011. Electrode sizes available are $\frac{3}{32}$, $\frac{1}{8}$, $\frac{5}{32}$, $\frac{3}{16}$ and $\frac{1}{4}$ in core dia in 50-lb packages. All-State Welding Alloys Co., 249-55 Ferris Ave., White Plains, N. Y.

Push and pull accessories added to front-end loader

Two new pieces of accessory equipment have been developed for use with the Model HM 4-wheel drive Payloader.

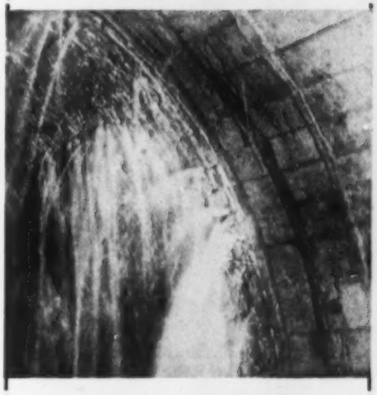
One of these is a wide pusher plate of heavy rolled steel to be mounted at the rear of the tractor. The second is a retractable towing link incorporated in the pusher plate. Where it is desirable to use the Model HM as a prime mover to haul hydraulically controlled scrapers, wagons, rooters, etc., a set of hydraulic connections and valves can be installed. The Frank G. Hough Co., 772 Seventh St., Libertyville, Ill.



New yoke boosts compactor utility

A pneumatic compactor has been developed with a new flanged hauling yoke that permits changing the draft beam to match standard wheel- or track-type tractors. The unit has four weight boxes that may be filled to attain a single tire load as high as 53,000 lb. Each box rides on its own wheel and tire and is hinged at the rear to permit 1 ft of vertical movement. Thus maximum compaction over rough surfaces is attained without bridging or shifting the load. For further information address the Southwest Welding & Mfg. Co., Alhambra, Calif.

SIKA STOPS LEAKS FAST



...AND SIMPLY, TOO...

Sika can seal leakage through any concrete structure against pressure. The Sika method is quick, sure and long-lasting.

Here is all you do.

1. Hack and clean surface.
2. Mix quick-setting Sika liquid and portland cement.
3. Use Sika No. 4A mortar for sealing seepage and diverting water to bleeder holes. (For air-placed mortar use Sigunit.)
4. Use Sika No. 2 mortar (sets in 20 seconds) to plug bleeders.
5. After sealing all leaks, apply a protective cement coat over entire surface.

For 30 years Sika compounds and methods have helped solve concrete and masonry problems ranging from the production of high quality concrete to the sealing of joints or cracks subject to severe movement and pressure.

Additional Sika compounds cover the following specific problems: TO SEAL LEAKS AGAINST PRESSURE, TO SEAL JOINTS OR CRACKS, TO REPAIR NON-LEAKING SURFACES, TO REPAIR STRUCTURAL EXTERIORS, TO PLACE GUNITE OR PRESSURE GROUT, TO PRODUCE HIGH QUALITY CONCRETE.

Ask Sika's Engineers for details and recommendations.

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PUBLICATIONS

Industrial explosives—A new 48-page book and catalog titled "Atlas Explosives Products" offers specific aid in the selection of industrial explosives for underground and strip mining, quarrying and construction, pipe-lining, etc. The first quarter of the booklet summarizes in text and pictures the methods and explosive materials commonly specified for most effective and economical results in nine major industries. The catalog section describes and tabulates the properties of the various types of explosives, blasting caps, fuse, blasting equipment and accessories. Included is a section on the Rockmaster (millisecond delay) system of blasting. Catalog No. 12 is available from the EXPLOSIVES DEPT., ATLAS POWDER CO., WILMINGTON 99, DEL.

Air filters—An 8-page bulletin describes ventilation and air conditioning filters. The literature contains specifications, engineering and performance data covering dry type panel filters recommended for the removal of air-borne impurities. Bulletin No. 600 is available from the DOLLINGER CO., 11 CENTRE PARK, ROCHESTER 3, N. Y.

Parking aid—A two-page bulletin describes the use of parking posts and square cut wooden timbers to aid in the solution of parking problems. Besides pointing out the advantages of the use of parking posts, the bulletin includes information on how to lay out a parking lot. Of particular interest to municipal officials, this section includes a dimension table to be used with a schematic drawing in determining the number of cars that can be contained in a specific space.—ENTERPRISE INDUSTRIES, INC., 517 JAMES ST., STREATOR, ILL.

Cranes and shovels—A new book has been published on the construction of Lorain-TL Series of shovels and cranes. Entitled "The Inside Story on the Package Component Design of the Thew Lorain TL Series", the presentation of the booklet enables one to see inside the machine. This is done by printing on transparent acetate film so that the various assemblies in the machine can be superimposed on each other just as they are in the actual machine. Each page displays one packaged component of the turntable in complete detail; collectively, the pages illustrate the entire turntable.—THE THEW SHOVEL CO., LORAIN, OHIO.

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Only a Hoe can do Special Excavating Jobs

Hoes are designed for digging below the level on which the machine is standing. However, unlike the dragline and clamshell, that also operate from on top, the Hoe has precision control and a powerful digging action.

A Hoe is free from "wet bottom" difficulties, stands on firm ground and works *away* from the excavation. A properly designed Hoe is a powerful excavator that can dig easily through hard clay, shale or rock. Moreover, because of the fixed length of boom, the dipper can be controlled precisely, resulting in smooth, straight side walls, level bottom and close-limit digging.

Because of these characteristics, the Hoe is ideally suited to certain types of work. Trenching for sewer, water, gas and cross-country pipelines is one of them. These trenches are dug through all types of ground conditions, must have straight side walls and level bottom and frequently are very deep. The precise control of the dipper and the ability to wade through tough digging make a Hoe a "must" on this kind of job.

Hoes are used extensively for excavating residence basements with square corners, level floors — practically eliminating hand trimming. The Hoe can dig the trench for the utility lines, too.

Hoes are available in a variety of sizes and capacities to handle a wide range of jobs and uses ranging from digging basements to pipelines. Illustrated is a "TL" Moto-Hoe in the ¾-yard class.

For excavating for footings for larger structures, big capacity Hoes are available to handle a high volume of dirt and still retain the precision of control necessary for this close-limit work.

Two requisites of good Hoe boom design are a gooseneck boom for maximum digging depth and one with a narrow upper section so the operator can see what he is doing.

The bucket should be so designed that it fills easily, even in tough digging, and dumps cleanly.

A Hoe can be a money-maker for a contractor. They are available mounted on crawlers or rubber-tire carriers.

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There are *some* excavating jobs that *only* a Hoe can handle. There are many others that *can* be dug efficiently with this versatile tool. This powerful, accurate digger can "get you out of a hole" by digging one where no other type of machine can.

Thew-Lorain builds a complete line of Hoe booms for use on all models in the line consisting of seven machine "Series" from ⅜ to 2-yard classes . . . on crawlers, Self-Propelled and Moto-Crane carriers. Lorain Hoe booms range from 14 to 25 feet in length with cutting widths of 24 to 62 inches . . . can dig up to 28 ft. deep. Too, you can interchange your Lorain Hoe with all the other booms available for each model.

If it's a job for a Hoe — big or small — let your Thew-Lorain Distributor prove why it's wise to select a Lorain.

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Send for this brand new pictorial book that illustrates jobs best handled by a Hoe. Big pictures of all 7 sizes of Lorains in action. Gives pertinent job data. Illustrates both crawler and rubber-tire models. Every contractor will find this a valuable reference. Write for your copy today.

THE THEW SHOVEL CO., LORAIN, OHIO

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Your local Thew-Lorain Distributor can help you in many ways. He will help you determine the right model, mounting and front end from the complete Lorain line. He will show you Lorains in action. He backs up your job with experienced service personnel and parts-in-stock. His facilities can add extra profits to every contract.

SEE THE
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EDITORIALS

An RFC for roads

Congress soon will be actively considering how much and what type of aid it will approve for the states to help them with their roadbuilding tasks. At the moment attention is centered on increasing the federal aid from the current rate of $575 million per year to an amount close to the total income from the federal gasoline tax, which is around one billion dollars. But even that increase will not permit many states to expand their program of road construction and reconstruction to the extent it should be expanded to make up for past deficiencies and still keep pace with the growing volume of motor-vehicle traffic.

There is one possibility for additional financial aid to the states that has not been given much thought in recent years. This is the creation of an agency similar to the Reconstruction Finance Corporation for the specific purpose of financing highway construction beyond what can be paid for directly from current income. For purposes of discussion such a new agency might be called the Highway Finance Corporation.

Interest and amortization of loans from the HFC would be paid in future years out of each state's own gas-tax income. It could also be paid from its share of federal aid in the years after current abnormal needs have been met.

The Federal Aid Highway Act of 1952 contained a provision authorizing the states to use federal aid in future years to pay interest on bonds sold to expand their current construction program. Few states, if any, have taken advantage of that provision, probably due to lack of any convenient agency from which to borrow. Setting up a Highway Finance Corp., therefore, might be all that is necessary to provide many states with funds they cannot obtain from other sources. The subject warrants further study.

Prefabricated marine structures

The clever way in which precast sections for a wharf at Kitimat, B. C., were floated into position for sinking (ENR Jan. 14, p. 29) indicates the expanding possibilities of prefabrication as a tool for builders of marine structures. Like the larger precast units for Pier 57 on the Hudson River at New York (ENR Aug. 7, 1952, p. 26), sections of the wharf at Kitimat were built in a dredged temporary drydock, but the problem faced by engineers for the British Columbia work was shallow water between the drydock and the site of the wharf. As shallow approaches to a possible site for a temporary drydock probably would be the rule rather than the exception in most harbors, the rotating plan used at Kitimat may well serve as a guide to others considering the advantages of building wharves or piers by precasting in large sections.

Also, it appears probable that more use of large prefabricated concrete units can be expected in bridge pier construction. At the present time that is being done in building the bridge that will carry New York State's Thruway over the Hudson River. There the semibuoyant design developed for Pier 57 at New York is being applied to foundations for the main spans of the bridge, including building the base structures for the piers in drydock and floating them to the site.

Prefabrication of caissons for bridge piers and floating them to the site for sinking is far from new. In the past, however, the prefabricated units were generally only a small part of the pier, serving chiefly as a compressed air working chamber or as a cutting edge for open work. Now that prestressing makes it possible to reduce the deadweight of precast concrete structures, it appears highly probable that much more use will be made of large precast units both in bridge work and harbor construction.

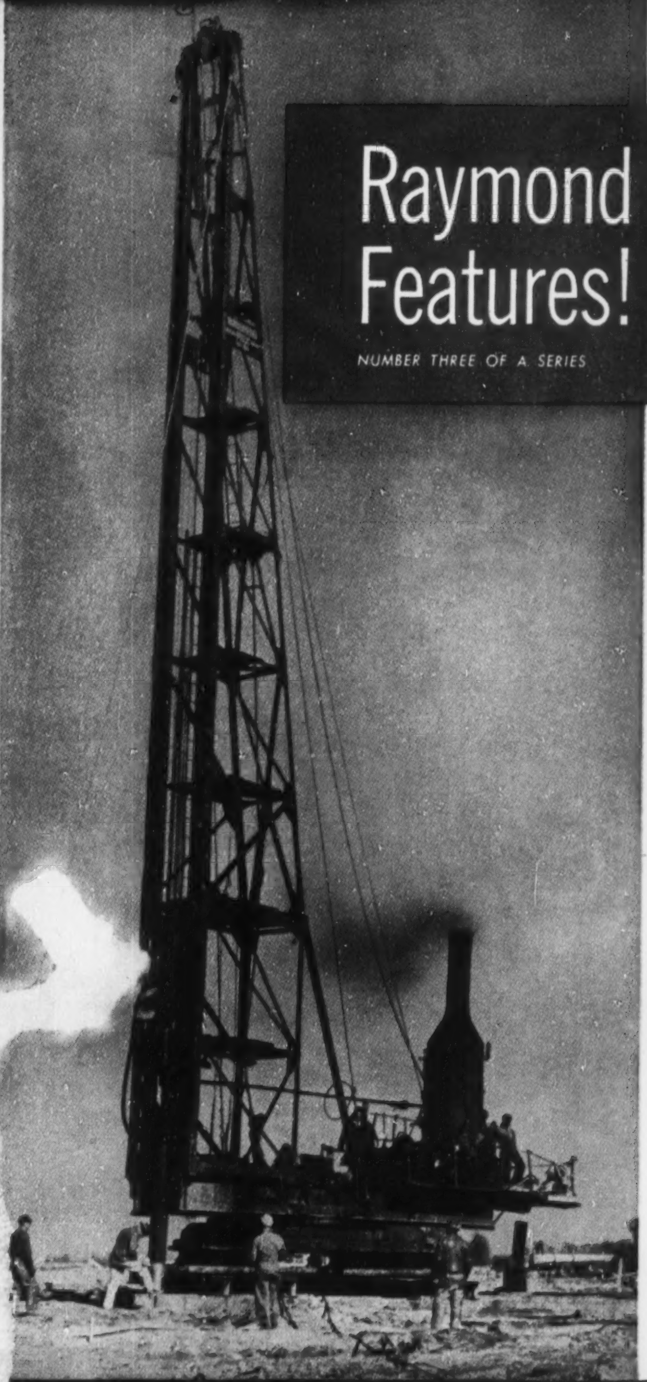
Certainly in the reconstruction of the many old structures in the nation's ports and harbors there appears to be limitless possibilities for engineers to apply the same kind of ingenuity that was applied to Pier 57 at New York and to the wharf at Kitimat.

New voice in construction

The huge convention and show of the National Association of Home Builders in Chicago two weeks ago (ENR Jan. 28, p. 23) presented striking evidence of the important position which this organization has attained in its 10 years of existence. Homebuilding has always accounted for about one-third of all construction, but it lacked a rallying point. NAHB now gives this segment of the construction industry a collective voice as well as an opportunity to cooperate in the improvement of its techniques.

The NAHB has given every evidence of taking its new position seriously. It is consciously working to better the position of its members, to aid them in their work, to make dignified, reasoned approaches to legislation, to sponsor research. Also, because of its somewhat unusual character—it must also be salesman and financier—it has made greater and more effective use of publicity and normal sales methods than other segments of the industry.

With these attributes and assets NAHB can make an important contribution to the whole construction industry. It can aid the homebuilding segment to raise its standards of performance and thus produce better housing. And it can, by joining forces with the longer established organizations representing other segments of construction, give the industry a more unified voice in speaking to the public and in making its views known in legislative halls. The emergence of NAHB is a welcome development.



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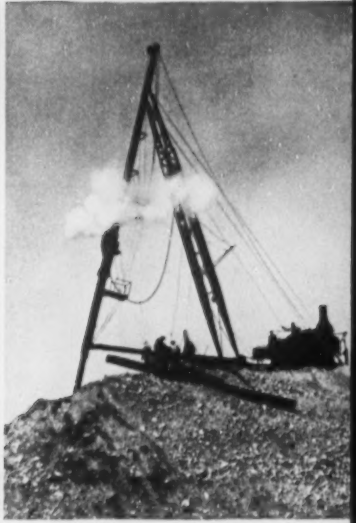

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Crashing limestone—jolting road shocks, so they mounted the wheels on TIMKEN® bearings

45 tons of limestone come crashing into this big Easton tandem trailer, which then rides at high speeds over quarry roads to a cement plant.

All the jolting impacts are taken by the Timken® tapered roller bearings which support the wheels on the axles. And, rugged enough to take the heaviest shock loads, these bearings are also fine precision mechanisms.

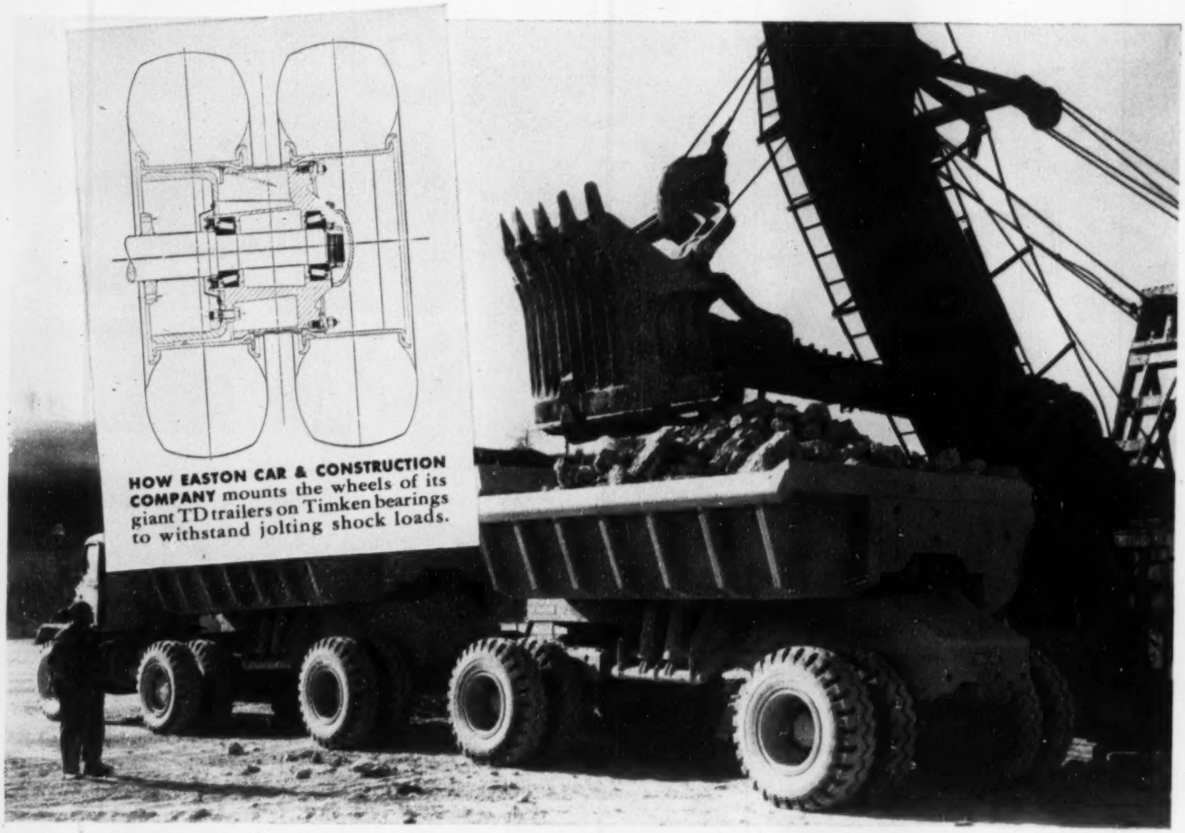
To get steel good enough for these bearings, we make our own—Timken fine alloy steel. To provide wear-resistant surfaces and shock-resistant cores, the bearings are case-carburized. They're tough on the inside, hard on the outside.

And Timken bearings have *inherently* high load capacity because the load is carried on a *full line contact* between rollers and races.

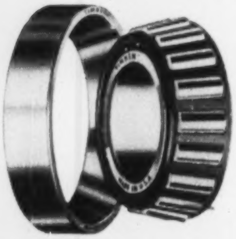
With these Easton trailers on the straight and level, the bearings withstand radial loads. But turning corners, the bearings also have to take sidewise *thrust* loads. The taper enables Timken bearings to take both radial AND thrust loads in any combination.

Timken bearings are a sure sign of quality on the equipment you buy—the equipment you build. Always look for the trade-mark "TIMKEN". The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

This symbol on a product means its bearings are the best.



HOW EASTON CAR & CONSTRUCTION COMPANY mounts the wheels of its giant TD trailers on Timken bearings to withstand jolting shock loads.



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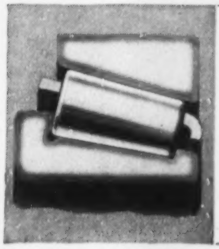

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Because the load is carried on the *line* of contact between rollers and races, Timken bearings carry greater loads, hold shafts in line, wear longer. The Timken Roller Bearing Company is the acknowledged leader in: 1. advanced design; 2. precision manufacturing; 3. rigid quality control; 4. special analysis Timken steels.

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